The Iron Age

A Review of the Hardware and Metal Trades.

Published every Thursday Morning by DAVID WILLIAMS, No. 10 Warren Street, New York.

Vol. XIV: No. 18. *New York, Thursday, October 29, 1874.* *Four Dollars a Year. Single Copies, Ten Cents.*

A Direct Acting Steam Riveter.

While in nearly every branch of mechanics great attention has been paid to improvements in labor saving machinery, the very important department of boiler making has been comparatively neglected. Until recently the punch, shears and rolls constituted the whole stock of labor-saving machinery in the boiler shop.

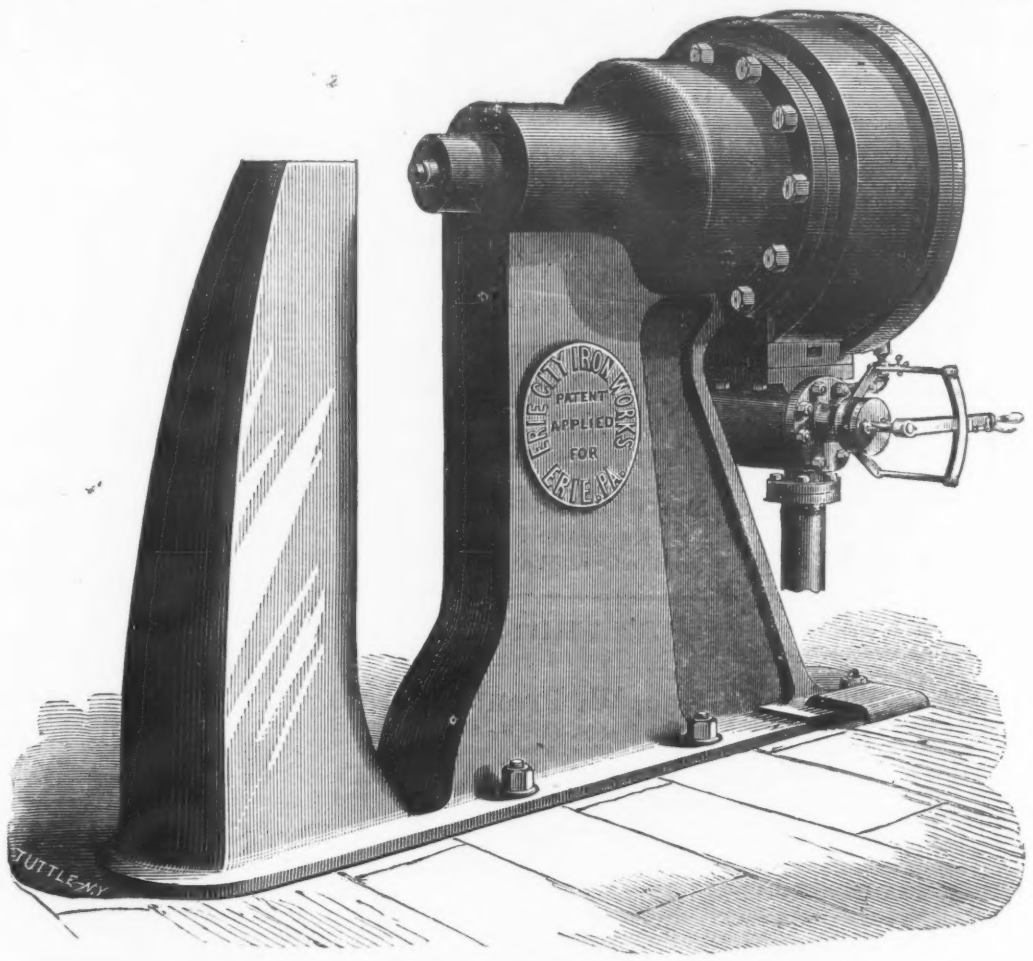
Of late, however, the attention of mechanics has been turned to this neglected field, and improvements are now being introduced that are destined soon to effect a revolution in the present methods of work. The best shops are now introducing machinery for scarfing, flanging and riveting with most excellent results, not only as regards the saving in cost, but (which is of much greater importance) in the improved quality of the work.

We present herewith an illustration of the direct acting steam riveter, manufactured by the Erie City Iron Works, of Erie, Pa.

The main body of the machine is a standard heavily braced and extending below the floor about five feet, to receive the heavy post or "man" which is fitted to its front side, and securely held in place by bolts and a very heavy wrought iron band (shrunk on) around the whole machine. The steam cylinder and valve are bolted to the opposite side of the standard, the top of which serves as a guide to the piston rod, which is eight inches diameter, and does duty as a ram. The top of the post and end of the ram have each three holes for the reception of dies. These dies are of steel, their faces countersunk to form the heads of the rivets, and are usually placed in the center holes, unless required to work in a corner (as in the furnace of a locomotive), when they are moved into one or the other of the side holes as required. They are also so arranged as to admit the riveting of a head to the shell or angle iron to a plate. The valve is balanced and worked by hand, giving the operator perfect control of the movement of the ram and force of the blow. The work to be riveted is suspended by a swivel and chain, and raised or lowered between the dies by any suitable device.

The method of riveting is as follows: The plates being in position between the dies, a light blow is struck to "set up" the iron, and insure perfect contact. The rivet is now inserted, and a slow crushing blow is delivered, the whole pressure being allowed to remain on the rivet till it has practically cooled, when a quick, sharp blow is given, and the work is done. The cylinder is 36 in diameter, and with 50 lbs. of steam this gives a blow or pressure of 50,000 lbs. This enormous force upon the hot, soft rivet, upsets it perfectly without injury to the iron, and leaves it better and stronger than a hand driven rivet, which becomes more or less crystalized by hammering.

It is claimed for this machine that the two most essential points in good riveting, viz., close contact of the plates and thorough filling of the hole by the rivet, are obtained more perfectly than can be done by hand, particularly in heavy work. It is well adapted not only to all kinds of boiler work, but also for bridge and ship work. It rivets plates 60 in. wide, and weighs about 22,000 lbs. Further particulars may be obtained of the manufacturers.



DIRECT ACTING STEAM RIVETER FOR BOILER WORK, &C.

A Notable Anniversary.

We find the following in the London *Mining Journal* of the 28th ult:

Forty-nine years and a day have elapsed since the formal opening on September 27, 1825, of the first public railway. The Stockton and Darlington Railway has passed out of existence as a distinct institution, but yet it figures as a section of the gigantic monopoly of the North—the North-Eastern Railway, and the district which gave birth to it will not willingly let die the story of its fame. It may be interesting to recall the facts recorded, and to add others gathered from the memories of the few survivors of the early days of the first railway.

Early in this century communication by canal or railway between the port of Stockton and the coal districts to the west of the county of Durham was projected. Committees were appointed to forward the project at Darlington in 1812, and at Stockton in 1818, and that at the latter place issued an elaborate report drawn up by Mr. G. Leather, at the instance of the late Mr. Christopher Tennant, of Stockton, in favor of a canal from Portrack, near Stockton, to Evenwood Bridge, near West Auckland. Slowly, however, opinion of capitalists gravitated to the project of a railway, as it was then called; and in 1819 application to Parliament was made for power to construct such. The application was defeated, and in the following year a second application also fell to the ground. In 1823, however, the application of the Stockton and Darlington Company was granted by the Legislature. The company seems to have taken time by the forelock, for on May 23, 1822, the first rail of the railway was laid near St. John's Well, Stockton, by Mr. Thomas Meynell, of Yarm, the chairman of the company. Sixty shareholders composed the company; the length of the line was 25 miles, and its construction occupied above three years. On Sept. 26 the committee and directors had a preparatory trip on the line, and on the following day the formal opening took place—the first locomotive conveying a vast body of passengers, and goods estimated at 90 tons, from Brusselton Incline to Stockton.

The account given by one of the few recorders of that day has been so often quoted that repetition is unnecessary. Of those who made the journey most have passed over it into the silent land, the chief and almost sole survivor now is Mr. Henry Pease. Little expectations had the company of passenger traffic, and one "coach"—mounted on flanged wheels, and named the "Experiment," was their sole provision for it. For eight years its successors were horse drawn, and constant quarrels arose between the drivers of the quadrupeds and the drivers of the engines used for merchandise. When Middlesborough was forming, coaches such as Union and Express were first locomotive-propelled by the Wilberforce. The rest we know; and know, too, that despite deficiencies, the motto has been appropriate which was chosen to emblazon Experiment by a clergyman named Peacock, of Stainton, near Stockton—*periculum privatum utilitus publica*. The company ordered three engines of Messrs. R. Stephenson & Company—Locomotion, the first engine employed on a public railway, which was the sole engine employed in 1825, and two others which commenced work in the following year—Hope and Black Diamond. It was soon found that repairing works were needed for the engines, and in 1825 a narrow, barn like shed was erected at Shildon. It consisted of a blacksmith's shop, with two smiths' fires, in which less than half a dozen smiths worked; a joiners' shop, with a similar number of hands, and a shed to hold two small engines.

The measure in which this first railway has influenced the district it penetrates cannot be better told than by brief figures showing the difference in the populations then and now. It may, however, serve to show the magnitude of that system, founded by a Stephenson and a Pease, if we quote from official statistics a few figures proving the extent of the development of the railway system in the North. Instead of one engine, the successors of the Stockton and Darlington Company have 1155; in place of one coach they have above 1500; the line has grown from 25 miles to 1311; the dividend is more than threefold; the capital, from £160,000, is now above £48,000,000. The two small sheds for repairs have found such huge successors that their cost is above £380,000 yearly; and the amount of train mileage run is enormous—approaching 20,000,000 miles yearly. From Doncaster and Hull to Berwick, from Scarborough to Carlisle, from Tebay and Penrith to Saltburn—the chief of the great northern counties are served by the aggregate of lines in which the identity of the ancient mother of locomotion is sunk. Five years after the opening of the Stockton and Darlington line its rolling stock consisted of 59 chaldron wagons, 53 wooden ones, and 29 three-quarter chaldron ones—the estimated value of which was under £1200. If now the rolling stock of the company were gathered, both lines from Hexham to Newcastle would be blocked, the line to Durham would be filled, to Morpeth would be similarly used, and every line and branch for miles round Newcastle would be occupied with about 70,000 conveyances, costing capital some £7,500,000. Railways have revolutionized England; making traveling possible and commerce probable. And in the North—the birthplace at once of the railway, the locomotive and their great introducers—the results of that revolution are seen as greatly as in the South. In Britain, then, there should be on the anniversary of a memorable day have been remembrance of the two men, George Stephenson, in his honored grave, and Edward Pease, in his quiet resting place in the Quakers' burial place at Darlington, whose skill and enterprise carried to a successful issue an undertaking which was hazardous then, but which has proved itself the parent of uncounted blessings. They were the pioneers of a system which has set time at defiance, and made distance of little moment. On rapid communication all the appliances of our civilization depend, and having it we may well turn in grateful thought to the Killingworth engine-wright and the Darlington manufacturer, who needed an energy we can scarcely now credit, beside skill and enterprise, to slowly bring into being, 49 years ago, the first passenger railway.

Gas Manufacture in Paris.

The Parisian company for lighting and heating by gas, founded in 1855 by the union of several companies which previous to that time divided the work of lighting Paris, produces a quantity of gas which exceeds annually 140,000,000 of cubic metres. The manufacture of gas is carried on in ten works, which supply both Paris and its suburbs. They are those of La Villette, Ternes, Passy, Vaugirard, Ivry, Belleville, Saint Mande, Saint Denis, Boulogne, and Maisons-Alfort.

The chief product of manufacture is gas for lighting. It is obtained either in ordinary gas retorts, or in the coke furnaces patented by MM. Pauwels and Dubochet. The coke proceeding from distillation of the coal, when it comes from the retorts, is used for domestic heating, because it is very light; the coke from the furnace, on the other hand, being hard and very dense, is sold either for railway uses or for metallurgical industries.

The company also possess works in which it treats the sub-products of distillation, and other works in which are prepared the apparatuses necessary either for its expoliation or for the utilization of its products by trade and the public. It is thus that the tar and ammoniacal waters form the object of special manufacture in one separate establishment, and in three workshops established in three of the principal gasworks.

The company itself manufactures at La Villette the reterts and all the refractory products it uses in its works; and the arrangement is on such a scale that furnace pieces can be supplied to gas works at a distance that may desire them. A coppersmith's workshop, also at La Villette, gives the company the means of providing all the apparatus of plate metal required in its operations, such as gasometers, reservoirs for water, tar, condensers, etc. In still another workshop it constructs the gas engines, which, employed for several years past in different parts of Parisian industry, have popularized the use of gas as a motor force, replacing advantageously, in some cases, the steam engine, and always with economy of manual labor. Lastly, it executes the laying of the pipes by which the gas circulates in the public streets. These operations are of great importance from the large consumption of gas, and the difficult conditions encountered in the streets of a large city like Paris. To satisfy the requirements of the service the company has devised new processes of laying and joining the pipes, had recourse to pipes of uncommon diameter, and special apparatus, stop-cocks, etc.

The treatment of tar, the quantity of which annually exceeds 25,000 tons, is done in the central works at La Villette, which contains steam engines with a total force of about 80 horse-power, and employs ordinarily more than 120 workmen. This workshop, completely changed within the last five years, occupies a surface of 5½ hectares. The principal products obtained are: The light essences, which undergo in one workshop various special treatments, the aim of which is to obtain the commercial products known under the names of benzine, for scouring, application of caoutchouc, &c.; phenic acid, for preparation of picric acid and disinfection; benzole, primary matter in the manufacture of aniline. A new manufacture, that of anthracene products, employed in the preparation of artificial alizarine, has of late been added to the others. The heavy oil, utilized for conservation of wood, for oil paintings, and the manufacture of smoke black, and which can also be advantageously used in heating furnaces and steam boilers. The pitch, employed for agglomeration of slack coal, preparation of artificial bitumen, &c. Lastly, to utilize a residue which is almost without value, and always encumbering, an abundant product in gas works, coke dust, the company has recently erected a special workshop, in which this dust is agglomerated with pitch. It thus obtains a fuel suitable for heating steam boilers, and which may be mixed, in a certain proportion, with the coke used in heating gas furnaces.

To avoid the inconveniences which may arise from the operations of a gas industry in the interior of a place like Paris, several important improvements have recently been introduced. Thus, to render impossible the infiltration of oily products into the ground—the effect of which is to alter the nature of water supplying the wells on neighboring properties—the tars and oils produced are stored in large reservoirs of sheet iron, placed at an elevation on blocks of masonry. These reservoirs are, beside, so arranged as to permit an easy surveillance at their edges, and also to economize a large part of the expense of manual labor at the time of delivery. The oils, received directly on coming out of the serpentines, in iron tanks, are forced by air pressure into the reservoirs. By this simple combination considerable labor is saved, while waste and causes of fire are avoided. Another special arrangement provides for the avoidance of the odorous emanations which would otherwise be produced while the pitch is being decolored in the basins. This arrangement permits of distributing daily in the pits, and at a distance of more than 100 meters, without production of traces of vapors, a quantity of more than 100 tons of pitch. Lastly, in the work of prolonged distilation of tar in order to produce anthracene, an agitator apparatus of special arrangement has been fitted to the boilers, which is kept in action throughout the process. In this way are largely reduced the deposits which form at the bottom of the boilers.

The ammoniacal waters produced by distillation of coal are treated in these special works by means of apparatus devised by M. Malet. The quantity of ammoniacal products obtained in these works reaches annually about 3000 tons. The products are sulphate of ammonia, used for manufacture of alum, and in agriculture; its use as manure has considerable developed within the last four or five years. The nitrogen assimilable by plants occurs in sulphate of ammonia in the fixed state, and so is not liable to be volatilized and lost, like that of Peruvian guano, and of every fermentable matter. Its effect are less rapid than those of guano, but they are more durable. The volatile alkali, or solution of caustic ammonia in water, used for dyeing, scouring, frigorific machines on Carre's system, &c.

The introduction of special apparatus, combined so that the vapors liberated during the treatment of ammoniacal water are carried to hearths at the foot of tall chimneys, suppresses all inconveniences to the neighborhood, at the same time improving the general conditions of health in the workshops. The new apparatus, manometer and safety valves, fitted to the boiler for distillation, obviate accidents which might sometimes occur from obstruction of the pipes by ammoniacal salts.

It is also at La Villette, and near the Saint Denis Canal and the railways du Nord and de l'Est, that the works for manufacture of refractory products is centralized. The process of crushing and mixture of earths and cements, the kneading of the paste, and the conveyance to the bottom of the work are effected mechanically with a steam engine of 40 horse-power The shaping of the pieces, which requires the greatest care, is done only by hand. The workshops, in which the products are dried, are heated, without expense, both by the heat lost from the baking-furnaces and by the escape steam of the engine, circulating in pipes around the apartment. The baking is done in furnaces having two or four hearths, heated with coke got from the gas works.

The quantity of retorts made annually is about 3000. There are produced, beside, more than 20,000 various pieces, of extra-refractory composition, for the fitting up of furnaces (blocks, arch stones, &c.), and a million of refractory bricks.

The company has, further, found a means of utilizing the slag, from the hearths of gas-furnaces it is made to enter into a composition containing more than half its weight of this matter, and thus very hard materials are obtained for paving of workshops, stables, &c.—*Iron.*

The longest blast of a charcoal furnace yet announced is that of the Shelby Iron Company's furnace, at Shelby, Ala. It has now been working continuously for three years and seven months, and has made an average of 100 tons per week since it blew in. The greater part of the production has been an excellent iron for car wheel purposes, and its quality ranks it among our very best American irons. The ores used are limonites, yielding, when roasted, about 53 to 54 per cent. in the furnace. The consumption of charcoal has been 190 bushe (of 18½ lb.) per ton of pig iron produce The lining of the furnace is of fire brick, made at the works from clay found in the neighborhood.

Steam engines and vacuum pans for the sugar plantations of Cuba are to be manufactured at the Tredegar Iron Works, at Richmond, Va.

Metals.

ANSONIA

BRASS & COPPER CO.

19 and 21 Cliff Street,

(Adjoining Office of Phelps, Dodge & Co.)

Sheet Brass, Planished Brass, Polished Brass Door Rails, Brass Wire, Hayden's Patent Brass Kettles, Brass Tubing, Lamp Burners, Sun Burners,

Sheet Copper, Planished Copper, Copper Rivets & Burs, Braziers' & Bolt Copper, Braziers' Rivets, Copper Tubing, Copper Bottoms, Copper Wire, Iron Wire, Fence Wire.

A large variety of Wood and Bronze Case Clocks.

MANUFACTORIES AT ANSONIA, CONN.

Phelps, Dodge & Co.,

IMPORTERS OF

TIN PLATE,

Sheet Iron, Copper, Pig Tin, Wire, Zinc, etc.

MANUFACTURERS OF

COPPER and BRASS.

Cliff St., bet. John and Fulton,

NEW YORK.

A. A. THOMSON & CO.

Importers and Dealers in

Tin Plate, Sheet Iron,

ZINC, COPPER, WIRE,

Block Tin Spelter, Solder, &c.

Nos. 213 and 215 Water and 114 Beekman Sts.,

NEW YORK.

P. O. Box, 1.

T. B. CODDINGTON & CO.,

25 & 27 Cliff St., New York.

Importers of

TIN PLATES,

And METALS of all descriptions.

N. L. CORT & CO.,

Importers and Dealers in

Tin Plate, Pig Tin,

SHEET IRON, SOLDER, ZINC, &c., &c.

220 & 222 Water and 115 & 117 Beekman Streets,

N. L. CORT, C. P. CORT, NEW YORK.

SCOVILL MFG. CO.,

419 & 421 Broome St., New York.

MANUFACTURERS OF

SHEET AND ROLL BRASS,
BRASS AND COPPER WIRE,
GERMAN SILVER, BRASS BUTT HINGES,
KEROSENE BURNERS.
METAL BLANKS CUT TO ORDER.
CLOTH AND METAL BUTTONS, in every variety.

PHOTOGRAPHIC GOODS.

MANUFACTORIES:

Waterbury, Conn.,
New Haven, Conn.,
New York City.

Vermont Spiegel.

A uperior article worthy the attention of consumers, both in price and quality. Send for analysis to

JOHN W. QUINCY
98 William Street, New York.

EVANS & ASKIN

BIRMINGHAM, ENGLAND,

Refiners of Nickel and Cobalt.

SOLE AGENTS,

VAN WART & McCOY,

43 Chambers St., New York.

Nickel and Cobalt always in stock.

Metals.

Waterbury Brass Co.

CAPITAL, - - $400,000.

JOHN SHERMAN, Agent,

No. 52 Beekman Street, NEW YORK.

Mills at WATERBURY, CONN.

Sheet, Rolled and Platers' Brass,

GERMAN SILVER,

Copper, Brass and German Silver Wire,

BRASS AND COPPER TUBING,

COPPER RIVETS & BURS,

BRASS KETTLES,

WASH BASINS,

Door Rail, Brass Tags & Step Plates.

PERCUSSION CAPS,

POWDER FLASKS,

Metallic Eylets,

Shot Pouches,

Tape Measures, etc.

Manhattan Brass Co.,

Manufacturers of

Sheet Brass, Brass & Copper Wire, Copper Rivets & Burs, Brass Tubing, Spelter Tubing, Satchel Frames, Hurricane Lanterns,

Olmsted Patent Oilers, Prior Patent Oilers, Broughton Patent Oilers, Brass, Tin & Zinc Oilers, Baby Carriage Hardware, Stationers' Hardware,

"Domestic" Embossing and Fluting Machine, &c.

Office, 83 Reade St., N. Y.

Works, 1st. Ave. 27th to 28th Sts., N. Y.

H. H. HAYDEN, J. H. CRANE, } Managers. } H. L. COE, J. H. WHITE.

BENEDICT & BURNHAM MFG. CO.

MANUFACTURERS OF

Rolled and Sheet Brass and German Silver, Brass, Copper and German Silver Wire, and Beading.

Plain and Fancy Tubing, Brass and Copper Rivets and Burs, Brass and German Silver Castings, Piano-Forte and Wrought Brass Butt Hinges, Coal Oil Burners, Lamps and Lamp Trimmings of every description, Patent Lamp Scissors, &c., &c.

Depots—78 Reade St., N. Y., 57 Oliver St., Boston, and 17 N. Seventh St., Philadelphia.

Capital $400.000.

CHAS. BENEDICT, President and Treasurer.
CHAS. DICKINSON, Secretary.

BALTIMORE COPPER WORKS.

POPE, COLE & CO.,

Are now Purchasing

Copper Ores

and smelting and refining at these works, where, with experienced workmen and unusual facilities, we are turning out Ingot and Cake Copper of unequalled purity and toughness.

We are prepared to buy Ores, Matte, Reguius and other furnace material, in any quantities.

Office, 57 South Gay St, Baltimore, Md.
Works at Canton,

A. HARNICKELL,

22 Cliff Street, New York,

Offers from store

Baltimore Ingot Copper,

Lake Copper, Braziers Sheets, &c.

Old Copper bought.

W. & J. TIEBOUT,

Manufacturers of

BRASS GOODS,

Galvanized & Ship Chandlery

HARDWARE.

290 Pearl Street, New York.

JOHN W. QUINCY,

98 William Street, New York,

Dealer in

AMERICAN AND FOREIGN SPELTER,

COPPER, TIN, NICKEL,

And Metals generally.

Geo. A. Boynton

BROKER IN IRON

70 WALL ST, N.Y.

Fuller, Dana & Fitz,

Importers and Commission Merchants,

BOSTON. . . . 110 North Street.

in Plates, Sheet Iron, Metals, Iron, Steel, Etc.

Wrought Iron Beams, &c., for Buildings.

Exclusive Boston Agents for the sale of Morris, Tasker & Co.'s Lap Welded Boiler Tubes. Patent Cold Rolled Shafting. The "Burden Best" Iron. *Tensile Strength* 78,000 lbs. Union Iron Mills' *Own Patent* Beams, Channels, Etc. The Celebrated Bessemer Steel. Brown's *Original* Concord Axes. The Salem Lead Co.'s Lead Pipe.

☞ SWEDISH, NORWAY, ENGLISH, AMERICAN and SCOTCH IRON. RUSSIA SHEET IRON.

FULLER, DANA & FITZ'S *Price List on application.*

Metals.

The Plume & Atwood Mfg. Company,

MANUFACTURERS OF

SHEET and ROLL BRASS and WIRE,

German Silver and Gilding Metal,

Copper Rivets and Burs,

Kerosene Burners,

Shoe Eyelets, Lamp Trimmings, &c.

80 Chambers Street, New York.

13 Federal Street, Boston.

Rolling Mill, THOMASTON, Ct. | Factories, WATERBURY, Ct.

BROOKLYN Brass and Copper Co.,

100 John Street, N. Y.,

Manufacturers of

Copper Sheets, Bolts, Wire, Tubes & Bottoms, Roll Brass, Wire, Tubing & Rivets.

Zinc Plates, Sheets and Tubes. Also, Patent Metal for Roofing, Linings for Bath Tubs, Refrigerators, &c.; considered the best metal for Signs and Reflectors.

JOHN DAVOL & SONS,

100 John Street, N. Y.,

Dealers in

Ingot Copper, Spelter, Tin, Lead, Antimony, Solder & Old Metals.

Holmes, Booth & Haydens,

49 Chambers Street, N. Y.

ESTABLISHED 1853.

CAPITAL, - - $400,000.

Manufacturers of all kinds of

Brass, Copper & German Silver,

ROLLED AND IN SHEETS.

BRASS & COPPER WIRE,

Tubing, Copper Rivets & Burs.

BRASS & IRON

JACK CHAIN, DOOR RAIL.

German Silver Spoons,

SILVER PLATED FORKS & SPOONS,

Kerosene Burners, &c.

Works at Waterbury, Conn.

Wire, etc.

Geo. W. Prentiss & Co.,

HOLYOKE, MASS.,

MANUFACTURERS OF

IRON WIRE,

Bright, Coppered, Annealed and Tin Plated.

Coppered Pail Ball Wire, Bolt, Screw, Rivet, Belt Hook and Buckle Wire; Wire for the manufacture of Pins, Hair Pins, Wire Cloth, Heddles, Reeds, &c.

Also, Clock, Machinery, Spiral Spring and Piano Pin Wire, Plated Piano String Covering Wire, Plated Hook and Eye and Button Eye Wire, Tinned Broom Wire, fine Tinned Wire, and Tin-Plated Wire of all sizes and for all purposes. A specialty is made of the manufacture of

GUN SCREW WIRE

of all sizes up to one half inch in diameter, straightened and cut to order. Special attention is given to finishing orders to sample for particular purposes, where exactness of size is required. ☞ We work only the best Brands of Norway and Swedes Iron.

ROEBLING'S WIRE ROPE

For Best

IRON or STEEL WIRE HOISTING, RUNNING or STANDING ROPES, or BEST GALVANIZED CHARCOAL WIRE ROPES FOR SHIP'S RIGGING,

Address, JNO. A. ROEBLING'S SONS, Manufacturers, Trenton, N. J. or 117 Liberty St., N. Y.

Wheels and Rope for transmitting power long distances. Send for Circular and Pamphlet.

SPRAGUE SASH WEIGHT CO.,

YOUNGSTOWN, OHIO,

Manufacturers of

SPRAGUE'S IMPROVED

Sectional Sash Weights.

Orders solicited from all parts of the country.

Wire, etc.

National Wire and Lantern Works,

Warehouse, 45 Fulton Street, New York.

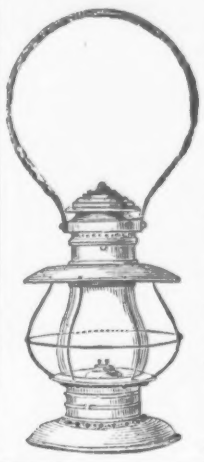
HOWARD & MORSE,

MANUFACTURERS OF

BRASS, COPPER AND IRON

WIRE CLOTH

Ship and Railroad Lanterns,



Signal Lights, Conductors' Lanterns

ADJUSTABLE GLOBE HAND LANTERN,

DESK AND OFFICE RAILING

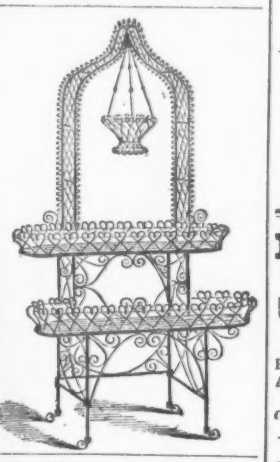
Riddles, Coal and Sand Screens,

NURSERY FENDERS & SPARK GUARDS

Ornamental Wire Fence.

IMPROVED WIRE **Flower Pot Stands,**

Wire Counter Railing, Wire Fencing, Steel Wire Casting Brushes, Weather Vanes, Stable Furniture, Bird Cages, Iron and Brass Wire Cloth, Twilled and Spark Wire Cloth, &c. Manufactured by E. T. BARNUM, Detroit, Mich. Send for Catalogue.



STEEL WIRE

Ventilator Cloth Will outlast Iron Three to One. Manufactured by W. S. TYLER, Cleveland Wire Works, Cleveland, O.

At Iron Rates.

Wire, etc.

Washburn & Moen Mfg. Company

WORCESTER, MASS.

Established 1831.

PHILIP L. MOEN, Prest. WM. E. RICE, Treas
CHAS. F. WASHBURN, Sec'y

MANUFACTURERS OF

IRON AND STEEL WIRE.

WIRE RODS of all Grades; Round Iron, Rivet quality, 3-16 in. to ½ in., cut to any length.

Owners and exclusive Operators of the

PATENT CONTINUOUS MILL,

Producing Iron and Steel WIRE, in coils of 100 pounds, without SEAM OR WELD.

Plain and Patent Galvanized Telegraph Wire,

Market and Stone Wire, Annealed Fence and Grape Wire in long lengths; Coppered Pail-Ball Wire; Rope, Bridge, Bolt, Screw, Rivet, Buckle and Chain Wire. Wire for the manufacture of Card Clothing, Heddles, Reeds, &c. Piano-string Covering Wire, Tinned Broom Wire and Tinned-plated Wire of all sizes. A specialty is made of Clock, Machinery, Gun Screw and Spiral Spring Wire, and Refined Wire to Pattern for particular purposes, from selected stamps of Norway Iron. Any grade of Wire furnished, Annealed, Bright, Polished, Coppered, Galvanized or Tin Plated. Wire furnished, Straightened and Cut to any length.

Steel Crinoline Wire, Patent Linen finish.
Unrivalled Steel Music Wire.

Steel Wire for Springs, Needles and Drills. Market Steel Wire kept in stock, all sizes.

Warehouse, 42 Cliff Street, NEW YORK.

THE

Gilbert & Bennett Mfg. Co.,

GEORGETOWN, CONN.,

MANUFACTURERS OF

Iron Wire, Curled Hair AND GLUE.

Brass, Tinned and Iron Wire Sieves, Coal, Oat and Hair Sieves, Hair and Wire Gravy Sieves, Brass and Iron Riddles, Brass and Iron Wire Cloth, Cheese Safes, Coal and Sand Screens, Wire Ox Muzzles.

Also Painted Screen Wire Cloth.

Wood Handle Stove Cover Lifters, Coal Hods Pressed and Patent Cast Shovels, Stove Scrapers and Pokers, Galvanized Conductor Strainers.

Gilbert's Rival Ash Sieve.

UNION METALLIC CLOTHES LINE

WIRE.

The highest price paid for Cattle's Tails and Hog's Hair.

WAREHOUSE,

273 Pearl Street, New York.

Stretches the wire each way, is tightened with a common wrench, is self-fastening at each half turn of the spindle. Warranted for strength and durability. Sold at hardware stores generally. Byington & Northup, sole manufacturers, Rochelle, Illinois.

P. W. GALLAUDET.

Banker and Note Broker,

Nos. 3 and 5 Wall Street, NEW YORK.

HARDWARE, METAL, IRON, RUBBER, SHOE, PAPER AND PAPER-HANGINGS, LUMBER, COAL AND RAILROAD PAPER WANTED.

ADVANCES MADE ON BUSINESS PAPER AND OTHER SECURITIES.

TACKLE BLOCKS.

BURR & CO

Manufacturers of Waterman and Russel's

PATENT IRON STRAPPED BLOCKS,

ALSO, MANUFACTURERS OF

ROPE STRAPPED BLOCKS,

31 PECK SLIP, NEW YORK

SAMUEL PARKER & CO.,

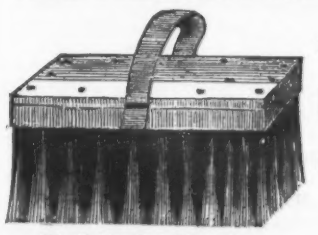
WETHERSFIELD, CONN.

WEAVERS OF

Brass, Copper, Steel and Iron Wire Cloth

Of every description.

PLAIN & LANDSCAPE WIRE WINDOW SCREEN CLOTH a specialty.



Steel Casting Brush.

STEEL SPARK CLOTH

For Locomotives, and all heavy grades of Wire Cloth for Coal Screens, Window Guards, etc.

Brass, Iron, Steel & Galvanized Riddles,

Wire Flower Stands,

STEEL CASTING BRUSHES, STEEL BROOMS, STEEL FLUE BRUSHES,

Made from the best tempered Flat Steel Wire.

All goods warranted to give satisfaction.

Send for Illustrated Price List.

EMMET HAMMER CO.,

Manufacturers of all kinds of

HAMMERS AND SLEDGES AND CONTRACTORS TOOLS,

BROOKLYN, E. D., NEW YORK.

All our goods are branded "E. F. EMMET & CO. Brooklyn, N. Y." None genuine without the above brand.

RUSSIA SHEET IRON,

Perfect and No. 1 Stained, in Store and for sale at lowest rates by

A. A. THOMSON & CO., 213 & 215 Water St.,

NEW YORK.

Iron and Coal in India.

The *Gazette of India* has just published some reports on the districts favorable for the manufacture of iron. Of Chandah, Mr. Bauerman, the government reporter, says: There are two localities, about five miles apart, known as Lohara. At the eastern one there is a mass of dense red hematite and magnetite more or less silicious, forming an isolated hill, which rises to about 120 feet above the level of the surrounding country. This mass would probably yield from 300,000 to 500,000 tons without going below the surface. The second or western Lohara is similar in character, but smaller in extent. These ores are about forty-five to fifty miles from Chandah, and would become of great value in the event of iron making becoming general in India, as they would be used for fettling puddling furnaces, and for mixing with the poorer ores of other districts. Whether they can be smelted upon the spot depends upon the nature of the coal obtainable from the Chandah-Berar coal field, and upon this point there is at present no evidence upon which to found an opinion, as neither of the collieries in process of sinking at Pisgaon and Wurrora has as yet reached the coal. From what I have heard of the character of the seam as developed by boring, I do not think that it is likely to prove serviceable for blast furnace purposes, but no opinion of any positive value can be formed upon this point until the coal has been developed to some extent by actual mining. The ore at Yenak consists of pebbles of red hematite in a red sandstone matrix, forming regularly stratified beds. The most important of these is about 27 feet thick. The ore is scattered irregularly through the rock, and in places forms loose heaps of considerable extent on the ground where the sandstone has been weathered at the surface. In depth the rock will probably become hard, so that it will require breaking by mechanical means to separate the stone from the ore; but as the series extends for about nine miles, probably a great deal of ore might be got by mere surface gleaning along the outcrop. The ore is similar to that of Lohara, but does not occur in such large masses. There is limestone close by, and the Berar coal field is within a few miles. This may probably become a place of some value when the the coal field is further developed. The iron ores of the Raneegunge coal field resemble the clay ironstones of the European coal measures, but are more concentrated, forming a middle series between the upper and lower coal bearing rocks. Though not so rich as the hematite of the central provinces, they are more accessible for working, and are found in conjunction with fuel that may probably be used for smelting purposes. Much of this iron ore is used as ballast and road metal on the Barrakur Branch Railway and the Grand Trunk Road; it can be raised very cheaply, and is by far the most promising material for any scheme of iron making to be carried out at once, as the district is well supplied with roads and railways, and more coal is produced than can be sold in the present state of the market. The Karunpoora clay iron ores, which form the basis of Mr. Donaldson's scheme for iron making at Hazareebagh, are much inferior in quality and quantity to those of Raneegunge, and cannot be considered to be of any practical value except for the native iron workers, especially as the country is without roads, and nothing is known of the quality of the coal which it was proposed to use for smelting; this part of the country is also very deficient in limestone. The brown hematite of the Nerbudda Valley, which is found in limestone about twenty-five miles north of Gurrawara is, as regards quality, about the best of the Indian iron ores that I have seen. If good coal were to be discovered by the boring at Garrawara, that station would form a good site for iron works, producing small bar and sheet iron, and similar high classed products. The coal got at Mohpani is, apart from its quality, far too high priced at present to be thought of for use in iron making, the Nerbudda Coal and Iron Company asking 11r. per ton taken at the pit's mouth.

The great deficiency of India in regard to iron making is in furnace building materials and limestone for fluxing. At Raneegunge, fire bricks that appear to be of a very good quality are made from mixtures of various clays brought from a distance, and, consequently they are comparatively high in price. As to their fire resisting qualities, I have heard very different opinions from the collery engineers who have used them in their boiler flues, so that it will be necessary to have direct experimental evidence before pronouncing an opinion on this point. The locality that seems to me to offer the best prospects for the establishment of large iron works in India is somewhere in the neighborhood of the Barrakur Branch Railway, within reach of the Sanktoria coking coals and the clay ironstone banks which are exposed on the railway cutting and on the Grand Trunk Road. The coke made in this coal field is moderately dense, but will probably be found to be very ashy, and to contain a good deal of sulphur, both very prejudical qualities for iron making purposes, but still it is the best fuel that can be got in the country, and I believe that similar fuel is successfully used in some parts of Europe. I will institute inquiries on this point as soon as I return to England.

In conclusion, I wish to impress upon the Indian government the necessity of getting complete analytical evidence as to the composition of the ores, fuel, and fluxes proposed to be used before going into any projects for the erection of new works. The problem to be solved is not a simple one, as there appears to be no single locality in which all the requisites for the production of iron can be obtained to advantage on the spot. Another point to which I wish to direct attention is that of railway rates. It is becoming a common practice in most iron making countries in Europe, and especially in the United States of America, to carry iron ores and other materials for iron making from very great distances to the smelting furnaces, and it would facilitate the production of iron in India if good ores could be carried to the coal in the same way. For this purpose, however, very much lower rates would be necessary than those now charged by the railway companies for the carriage of minerals.

In the report of Mr. Hughes, of the geographical department in Raneegunge, the following passage is well worthy of notice. It is almost needless to say that the claim of this field (Raneegunge) to be considered the most advantageous position for the manufacture of iron in Bengal on a European scale was recognized years and years ago by the survey, and that Mr. Bauerman, in recommending it as the locality offering the best prospects of success, has but confirmed the opinion held by every geologist and others competent to offer one. The establishing of large iron works was not urged at the time of the survey of the Raneegunge field, for it would have shown an utter disregard of the conditions essential to success to have done so. Since then, however, increased facilities of communication, discoveries of better coals, the possibility of making coke, and the steady rise in the price of imported iron have tended to reduce the margin of probable failure to such proportions that the prospect of the successful manufacture of iron has emerged from the region of speculation. The caution imposed, however, by Mr. Bauerman on the government of India before going into any projects for the erection of works is very judicious, for it is undeniable that the subject of fluxes is a most essential point to inquire into. With a view to throw some light upon the application of *kunkur*, I have lately made a few trial assays in the mint. I obtained a very fair slag, but it must be remembered that the assays were conducted under a favorable combination of circumstances unattainable in a furnace, and that before the practical adaptability of *kunkur* can be pronounced upon experiments on a more extensive scale ought to be carried out. The result of the small trials in so far answers a useful purpose that it indicates a possible substitute for limestone, and can be accepted as some measure of the value of *kunkur*. I propose, at the end of the field season, operating upon a few tons of raw material, varying the proportionate quantities of *kunkur*, ore and coal, and I cannot but anticipate that the deductions from such experiments will be of use. I am happy to say that I have already received offers of assistance and the loan of a cupola from the Hon. T. M. Robinson, of the Bengal Coal Company, and Colonel H. Hyde, R. E., to the latter of whom I am already indebted for facilities afforded me during my preliminary assays. I presume it is unnecessary to adduce evidence in proof of the enormous amount of coal which exists in the Raneegunge field. There is, perhaps, no area of similar size in the whole world which can compare with it for actual thickness of seams. The coal, however, is not so good in quality as it might be, but I believe better will be discovered as the field becomes progressively developed. The weak point of our Indian coal is the amount of inorganic matter that it possesses as compared with good English and Welsh coal; but lately two samples have been received at the Geological Survey Office, one from Sanpur, near Nirsha, and the other from Bahmandiha, near Niamatpur, which contain only 8·9 and 8·7 per cent. of ash respectively. The portion of the field which possesses the most promising coals, east of the Burrakur, is decidedly that part of it limited in a northwest direction by the outcrop of the seams mined on the Sanktoria and Belrui properties, and in a southwest direction by the Panchet formation, marked on the geological map. Within this area is included, in addition to the collieries belonging to the Bengal and New Beerbhoom Companies, those owned by Messrs. Apcar, and two or three quarries possessed by natives. Some of the land is, I am informed, held by Ranee Sarne Moui, a Hindoo lady, whose religious principles are opposed to coal mining. The deposits of iron ore are of two distinct geological ages. The older are associated with coal measures as a group in the series, while the more recent constitutes what is termed the laterite formation. Laterite, as a rule, is not rich in iron, and as it does not occur in any force west of the meridian of the town of Raneegunge, I directed my attention principally to the ores of the coal measures. I did not restrict my observations to any one special locality. I visited the lands east of Basera and Madapoor, and the entire tract from Laiganj to Bagunia. I thought it possible that the Singaram Valley might be a good locality for iron works, but it does not offer the same advantages as the western part of the field, where the iron ores of the measures are in close proximity to the superior coals of Sanktoria, Belrui, Dumarkunda, Bahmandiha, &c.

Two of the new furnaces of Messrs. Bell Brothers, Middlesborough, England, have been blown in, and six more are building or projected. The stacks are 80 feet high and 23 feet bosh, and were built under the superintendence of Mr. I. Lowthian Bell, now in this country. The blast is heated by six cast iron stoves to each furnace. The engines, with 100-inch blowing vertical direct-acting 48 inch steam cylinders, were constructed by Messrs. Hopkins, Gilkes & Co. The furnaces were first tapped by Mrs. Thomas Bell and Mrs Robert Stephenson. Another furnace will be ready in the course of two months; a fourth is in course of erection, and the foundations of a fifth are being laid.

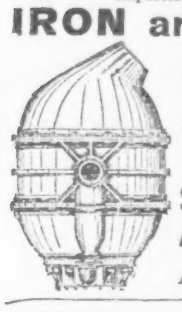
Messrs. A. Garrison & Co., of the Pittsburgh Foundry, have lately made for the Union Iron Company, of Buffalo, the largest plate train in the world—at least, the largest of which we have ever heard—to be run on the Lauth three-high system. We shall describe it more fully in a future issue.

Iron.

NEW YORK.

GAM'L G. SMITH & CO.,
IRON WAREHOUSE,
342, 344 & 346 Pearl Street, New York.,
Importers and Dealers in
IRON AND STEEL,
COMMON AND REFINED BAR IRON,
SHEET AND PLATE IRON,
Rod, Hoop, Band, Scroll, Horse Shoe, Angle and Tee Iron,
PIG IRON,
OLD RAILS,
WROUGHT IRON BEAMS.
Iron of all sizes and shapes made to order

PIERSON & CO.,
Established 1790,
22 & 26 Broadway, 77 & 79 New St.
EW YORK CITY,
AGENTS
Burden's Best Iron
And Burden's H. B. & S. Iron.
All sizes and shapes in stock.

JACKSON & CHACE,
206 & 208 Franklin St., N. Y.,
Importers and Dealers in
IRON and STEEL.

Agents for
JOHN A. GRISWOLD & CO'S
Bessemer Steel.
MACHINERY STEEL,
Cast Steel and
SPRING STEEL,
ANGLE and T IRON.
Special Irons for Bridge and Architectural Work.

ABEEL BROTHERS,
Successors to JOHN H. ABEEL & CO.,
Iron Merchants,
190 South Street and 365 Water, N. Y.
ULSTER IRON
A full assortment of all sizes constantly on hand.
English and American Refined Iron of choicest brands.
Common Iron.
Band, Hoop and Scroll Iron.
Sheet Iron.
Norway Nail Rods.
Norway Shapes.
Cast, Spring and Tire Steel, etc.

A. R. WHITNEY. J. HENRY WHITNEY.
A. R. Whitney & Bro.,
Manufacturers of and Dealers in
IRON,
56, 58 & 60 Hudson,
48, 50 & 52 Thomas, and } NEW YORK.
12, 14 & 16 Worth Sts.,
Our Specialty is in
Manufacturing Iron
Used in the Construction of
Fire-Proof Buildings, Bridges, &c.
AGENCY OF
Abbott Iron Co. Boiler Plate & Tank Iron.
Glasgow Tube Works Boiler Flues.
Pencoyd Iron Works Shafting.
Passaic Rolling Mill Angles and Tees.
A. R. Whitney & Bro.'s Rivets.
Whitney's Best Bar Iron.
Whitney's Wrought Iron Beams and Channel Iron.
Books containing Cuts of all Iron now made, and Sample Pieces at office. Please address 58 Hudson Street.

BORDEN & LOVELL,
Commission Merchants
70 & 71 West St.,
Wm. Borden, } —— New York.
L. N. Lovell, }
Agents for the sale of
Fall River Iron Co.'s Nails, Bands, Hoops & Rods,
AND
Borden Mining Company's Cumberland Coals.

T. B. CODDINGTON & CO.,
25 & 27 Cliff St., New York.
Bar Iron, Sheet Iron, &c
Of every description

Iron.

NEW YORK.

Conklin & Huerstel,
"IRON MERCHANTS,"
99 Market Slip, N. Y.
English and American Refined Iron,
COMMON IRON,
Band, Hoop and Scroll Iron,
Horse Shoe Iron & Horse Nails,
Norway Nail Rods and Shapes,
Cast, Spring, Toe Calk and Bessemer Tire Steel.
Sole Agents for the Celebrated Horse-Shoe Brand
HORSE RASPS.

WM. GARDNER,
575 Grand, 414 Madison & 309 Monroe Sts.
Bar, Hoop, Rod, Band and Horse Shoe Iron.
AGENT FOR
Best Norway N. R. & Shapes,
Spring, Toe Calk, Tire & Sleigh Shoe Steel.

A. B. Warner & Son,
IRON MERCHANTS,
28 & 29 West and 52 Washington Sts.
BOILER PLATE,
Boiler Tubes, Angle, Tee & Girder Iron, Boiler and Tank Rivets.
Sole Agents for the celebrated
"Eureka," Pennocks,
"Wawasset," Lukens,
Brands of Iron. Also all descriptions of Plate, Sheet, and Gasometer Iron. Special attention to Locomotive Iron. Fire Box Iron a specialty.

Geo. A. Boynton,
BROKER IN IRON
70 WALL ST, N.Y.

POWERVILLE
ROLLING MILL,
JOHN LEONARD,
450 & 451 West Street, NEW YORK.
Manufacturer of all sizes of **MERCHANT IRON and HOOPS.** Also Manufacturer of
Best Charcoal Scrap Blooms.
And Dealer in **Old and New Iron.**

Marshall Lefferts, Jr.,
90 Beekman St., New York,
MANUFACTURER OF
AMERICAN
Galvanized Sheet Iron,
AND AGENT FOR THE
Easton Sheet Iron Works, Easton Pa.
MANUFACTURER OF
Best Bloom, Charcoal & Refined Sheet Iron.
Galvanized Telegraph and Fence Wire
Galvanized and Tinned Roofing and Slating Nails.
Galvanized Hoop Iron of all widths.
Galvanized Staples.
Corrugated Iron for Roofing, plain or gal'd.
Galvanized Bars and Chains for Cemetry Railing.
Tin Plates, Spelter, and other Metals.

NORWAY IRON WORKS.
Spring, Tire, Toe Calk & Sleigh Shoe Steel.
BLISTER STEEL,
SCRAP RODS,
3-16, 1-4 and 5-16 Round and Square.
Norway Shapes & Nail Rods,
Etc., Etc. Address,
NAYLOR & CO.,
New York, Boston or Philadelphia.

S. WHITNUM,
Manufacturer and Galvanizer of
Coal Hods, Water Pails, Baking Pans, &c.
Galvanizer of Sheet Iron, Nails, Spikes and Tinned Roofing Nails, Wire, Hoop and Band Iron. Iron Work for Cemetery Purposes furnished complete.
Factory, cor Clay and Franklin Sts.,
GREENPOINT, L. I.

Iron.

NEW YORK.

HAZARD & JONES,
BROKERS.
NEW & OLD RAILS,
FOREIGN AND DOMESTIC
Pig Iron,
Wrought & Cast Scrap Iron, &c.,
204 Pearl St., New York.

JAMES WILLIAMSON & CO.,
SCOTCH AND AMERICAN
PIG IRON,
No. 69 Wall St., New York.

B. F. JUDSON,
SCOTCH AND AMERICAN
PIG IRON,
Wrought and Cast Scrap Iron.
457 and 459 WATER STREET,
And 235 SOUTH STREET, near Pike,
NEW YORK.

JOHN W. QUINCY,
98 William Street, New York
Dealer in
Anthracite & Charcoal Pig Irons,
OLD SCRAP and CUT NAILS.
Gibbs' Patent Lock Nut and Washer, and Fish Plates for Rail Roads.

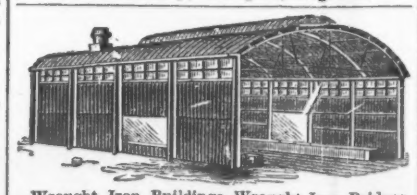
Birmingham Iron Foundry,
BIRMINGHAM, CONN.
ESTABLISHED 1836.
Rolling Mills complete for the manufacture of
Iron and Steel Rails,
Merchant Iron, Copper, Brass.
And the rolling all kinds of Steel.
Also, Shears, Trip Hammers, Presses, Rotary and Alligator Squeezers, Iron and Composition Castings every description.
India Rubber and Paper Callenders, Grinding and Cutting Machines, Gearing, Shafting, &c, most approved patterns.

WILLIAM H. WALLACE & CO.,
IRON MERCHANTS
Cor. Albany & Washington Sts.,
NEW YORK CITY.
WM. H. WALLACE. WM. BISPHAM.

BOONTON
CUT NAILS,
HOT PRESSED NUTS,
Machine Forged Bolts,
Washers.
Fuller, Lord & Co.,
BOONTON IRON WORKS.
139 Greenwich Street. New York.

Swedish Iron.
A Variety of Brands, including
UB HP N B 03
BARS suitable for Steel of all grades, Wire, Shovels, Hoes, Scythes, Carriage Bolts, Nail Rods, Tacks, &c.
CHARCOAL PIG IRON for Bessemer and Car Wheels.
MUCK BARS for Steel Smelting and Re-rolling.
SCRAP or BAR ENDS.
Direct Agency for **N. M. HÖGLUND, of Stockholm,** represented in the United States by
NILS MITANDER,
69 William St., New York.
ABBOTT & HOWARD, Boston, Mass. AGENTS: ALBERT POTTS, Philadelphia, Pa.

DANIEL W. RICHARDS & CO.,
Importers of and Dealers in
SCRAP IRON,
Pig Iron,
OLD METALS.
YARDS:
68 to 104 Mangin St., } Foot of Stanton St., E. R.,
71 to 79 Tompkins St. } NEW YORK.
OFFICES.
90 & 92 Mangin Street, }
178 Pearl Street, } New York.
30 The Albany, Liverpool, England.


Wrought Iron Buildings, Wrought Iron Bridges, Corrugated Iron Roofs, Shutters, Doors, Flooring, &c. Corrugated Sheets of all sizes manufactured by Moseley Iron Bridge & Roof Co., No. 5 Dey St., N. Y.

Iron.

NEW YORK.

HARRISON & GILLOON
IRON AND METAL DEALERS,
558, 560, 562 WATER ST., and 302, 304, 306 CHERRY ST.,
NEW YORK,
have on hand, and offer for sale, the following:
Scotch and American Pig Iron, Wrought, Cast and Machinery Scrap Iron, Car-Wheels, Axles and Heavy Wrought Iron; also old Copper, Composition, Brass, Lead, Pewter, Zinc, &c.

PETTEE & MANN,
Dealers in
Ulster, English Refined & Common
BAR IRON,
Scotch and American Pig Iron, Wrought & Cast Scrap Iron, &c., &c.,
228 & 229 South and 449 & 451 Water Sts., N. Y.
The highest price paid for Wrought and Cast Scrap Iron. Storage for Pig, Bar and Railroad Iron taken at the lowest rates.
D. L. PETTEE. G. A. MANN

OXFORD IRON CO.,
Cut Nails and Spikes,
R. R. Spikes, Splice Bars and Nuts and Bolts,
81, 83 & 85 Washington, near Rector St, N. Y.
JAMES S. SCRANTON, Agent.

DAVID CARPENTER,
Manufacturer of
HOT PRESSED NUTS,
And Dealer in
All kinds of Refined Bar & Horse Shoe Iron,
402 Water Street, New York.

U. O. CRANE.
BROKER IN
PIG IRON & METALS,
104 John St. New York.

EDWARD W. COIT,
IRON AND METAL
Commission Merchant,
No. 205 1-2 Walnut Street,
PHILADELPHIA, PA.
Boiler Plates, Boiler Tubes, Ship Plates, Specials.

BURDEN'S
HORSE SHOES.
"Burden Best"
Iron.
Boiler Rivets.
Burden Iron Works, H. Burden & Sons,
Troy, N. Y.

ESTABLISHED 1840.
PETER TIMMES,
Manufacturer and Galvanizer of
Wrought, Dock, Ship, Boat & Horse R. R. Spikes, Rivets, Nails, &c.
Nos. 281, 283 & 285 N. 6th St.,
Near junction of N. 2d St., Brooklyn, E. D.

Girard Rolling Mill Co.,
Manufacturers of
MERCHANT BAR IRON
AND T RAIL,
Nuts, Washers,
Collar, Machine and Bridge Bolts,
Patent Car Coupling Links & Pins.
L. S. TAYLOR, General Agent. } GIRARD, OHIO.

ADOLPH STARKE,
Manufacturer of
WROUGHT AND GALVANIZED
Ship, Dock and Railroad Spikes,
NAILS AND RIVETS.
441 & 443 East St., Near Avenue D, N.Y

Iron.

PITTSBURGH.

Pittsburgh Foundry.
A. GARRISON & CO.,
Manufacturers of
CHILLED AND SAND ROLLS,
Of acknowledged superior quality, at the lowest current prices.
Ore and Clay Crushers, and Rolling Mill Castings,
of every description.
Office, No. 33 Wood St., cor. of 2d Ave.
PITTSBURGH, PA.

PENNSYLVANIA IRON WORKS.
EVERSON, MACRUM & CO.,
Pittsburgh, Pa.,
Manufacturers of every description of
Bar, Sheet and Small Iron,
Make a specialty in
Fine and Common Sheet Iron.

W. P. TOWNSEND & CO.,
Manufacturers of
WIRE and
Black and Tinned Rivets
OF CHOICEST CHARCOAL IRON.
Rivets any diameter up to 7-16inch and ANY LENGTH required.
19 & 21 Market St., PITTSBURGH PA.

SHOENBERGER & CO.
Manufacturers of
CUT NAILS,
AND
Spikes,
HORSE AND MULE SHOES,
Horse Shoe, Bar &
SHEET IRON.
Goods warranted equal to any in the Market. Please send for Circulars in regard to "PICKED NAILS."
PITTSBURGH, PA.

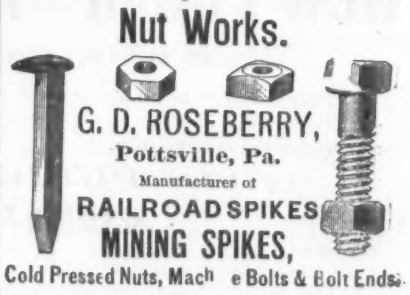
Boston Rolling Mills
Manufacture extra quality small Rods, from best selected Scrap Iron.
Swedish and Norway Shapes,
NAIL and WIRE RODS.
Also HORSE SHOE IRON.
BOSTON ROLLING MILLS,
W. R. ELLIS, Treasurer.
Office, 17 Batterymarch St., Boston.

"PEMBROKE"
Round, Square & Flat Iron.
"FRANCONIA" Shafting & Bar Iron.
Extra quality when great strain or superior finish is required. Also, Irons for ordinary work, like the "ENGLISH REFINED."
WM. E. COFFIN & CO.,
No. 8 Oliver Street, Boston.
New York Agents,
JEVONS STROUD & CO., 104 John St., N. Y.

PACKARD, GOFF & CO.
Youngstown, O.
Manufacturers of
Merchant Bar Iron.
Mills at Hubbard, O.; also Jobbers in
Nails, Nuts, Washers & Carriage Bolts.

Bonnell, Botsford & Co.,
Iron, Nails & Spikes,
YOUNGSTOWN, OHIO.

G. W. FAHRION,
Manufacturer of
Railroad, Ship and Boat
SPIKES.
Boat Spikes 3 to 18 inches long. Railroad Hook Heads all sizes. NILES, OHIO.

Pottsville Spike, Bolt and Nut Works.

G. D. ROSEBERRY,
Pottsville, Pa.
Manufacturer of
RAILROAD SPIKES
MINING SPIKES,
Cold Pressed Nuts, Mach e Bolts & Bolt Ends.

New Patents.

We take from the records of the Patent Office at Washington the following specifications of certain patents lately issued, which will be found interesting:

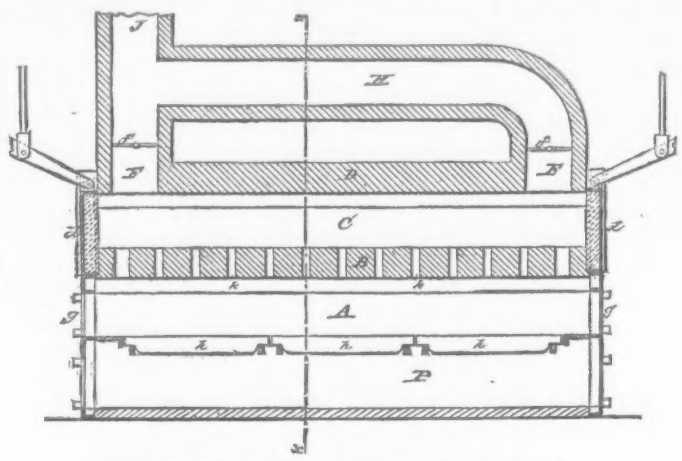
IMPROVEMENT IN FURNACES FOR HEATING AND ANNEALING SHEET METAL, &C.

Specification forming part of Letters Patent No. 154,534, dated August 25, 1874, issued to Caleb Marshall, of Philadelphia, Pa.:

Fig. 1 shows a longitudinal vertical section, and Fig. 2a cross section in the line *x x* of Fig. 1.

In patent No. 114,956, issued to the inventor, dated May 16, 1871, he described a process for removing scale from iron, and otherwise treating it during the operations of annealing, finishing and coating. In carrying on the several operations named in said patent, a heating furnace is required. The object of the present invention is to provide a new and improved furnace for that purpose.

The metal being generally in the form of sheets, and requiring the same uniform treatment in all parts, it is necessary that the heat be evenly distributed, and regulated at will to any required degree. The heating chamber must be kept as free as possible from flame, smoke, dust and sulphur, and should in no part become too highly heated. The accomplishment of these ends is the result of my invention.



IMPROVED HEATING AND ANNEALING FURNACE.—*Fig.* 1.

In the drawings, A is the fire chamber, covered by a perforated arch, B, above which is the chamber or oven, C, in which is placed the plates, sheet iron, or other articles to be treated. D is the crown arch, or roof, of the oven. Flues F F, provided with dampers *f f*, rise from each end of the oven, and lead to separate chimneys, or by a back flue, such as shown at H, connect with a common chimney, as shown at J. At each end of the furnace are two doors, the upper *d d*, being the ordinary lifting or working door, such as used in heating and other furnaces, and the lower, *g g*, suitable doors for charging fuel into the fire chamber. Grate bars *h h h* extend the entire length of the furnace, but a fire box at each end, or even a fire box at only one end, with suitable arrangement of

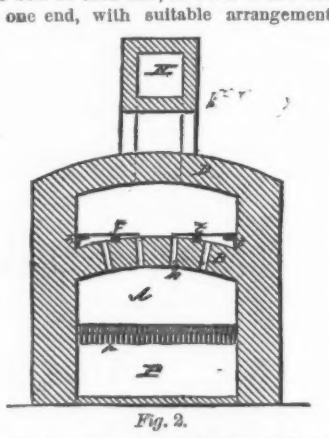


Fig. 2.

flues and dampers, so as to distribute the heat, would answer.

The perforations *k k* in the arch of the fire chamber permit the products of combustion to enter the oven and distribute them evenly; and the interposition of the perforated arch between the fire chamber and the oven prevents any excess of temperature at any part which would injure the articles to be heated.

On the floor of the oven are placed supports *t t*, made preferably of wrought iron, on which rests the sheet iron or other articles. Beneath the grate bar is the ash pit, P.

The arrangement shown gives a free combustion of the fuel, an even distribution of the heat in the oven, and easy means of controlling the temperature at all times. If the oven is too hot in either end, a proper adjustment of the damper will equalize it, and, by closing or opening them, the heat is controlled.

Claim—1. A furnace for heating metal plates, sheet iron, and other metallic articles, provided with a fire chamber and a heating oven, with a perforated arch between, arranged so as to operate substantially as described.

2. The combination of the fire chamber, the perforated arch and heating chamber, having flues, F F, and dampers, *f f*, at each end.

3. The oven or heating chamber, C, provided with a perforated floor, supports *t t*, and flues, F F, and back flue, H.

During the week ended October 18th, the Lucy Furnace, Pittsburgh, made 642 708-2268 tons pig iron—twenty tons more than the best run of the Isabella. There is a generous emulation between the furnaces to lead in the matter of a large production, and the Lucy now wears the feather.

Mr. Abraham S. Hewitt on Protection and the Tariff.

We extract the following from the address of Mr. A. S. Hewitt to the electors of the XVI. Congressional District of this city, on Thursday evening last:

The protectionists, if they had their way, would practically prohibit the importation of such articles as enter into competition with American industry; the free traders, on the other hand, would absolutely abolish all these duties, and impose them only on such articles as are not, or cannot be, produced in the United States, such as tea and coffee. Now I belong to neither of these classes. So long as foreign commerce is, as I believe it to be, a desirable branch of the national business, and especially so long as this city is so vitally interested in it, I would not prohibit the importation of a single article which the consumer desires to have; but as duties must be imposed in order to get revenue, I would select these articles in preference which enter into competition with American industry, and which can be produced in this country with as little expenditure of human labor as in other countries, and upon these articles impose such rates of duty as would make good the difference in cost produced by the higher rate of wages paid in this country. In this way a fair competition between the foreign and domestic production will be established, and as the difference in the rate of wages between foreign nations and this country grows less and less, as it assuredly will do, not by the reduction in the rate of wages here, but by their steady advance abroad, the rates of duty can be steadily reduced, and long before the national debt is paid off practical free trade in these articles can be established if it is deemed desirable.

I am perfectly well aware that it is possible to dispense with these duties and still maintain a production of the articles on which I would impose a duty in the United States, but the process would produce a very great disturbance in the business of the country and be attended necessarily by a reduction in the general rate of wages paid to workingmen; and the question for you and for statesmen to consider is whether such a reduction is desirable. It is not so much a question for the capitalists as for the workingmen themselves.

It is alleged by the free traders that the purchasing power of lower wages with free trade would be quite as great as that of higher wages under what they term the protective system. Admiting this to be true, there is one element which they leave out of sight, and that is, that with high wages there is a greater incentive and larger margin for saving to the frugal and industrious man determined to rise in the world, than there can possibly be with low wages. In other words, self-denial will accomplish more, and does daily accomplish more in our country than in foreign lands, by reason of the higher rate of wages here prevailing. Hence, as a moral question, I have favored, and always will favor, a high rate of wages, even though it be proved that its purchasing power is no greater. But aside from this there is another consideration even more powerful. To the extent to which we exchange our productions with foreign countries for their productions it seems to me we make a large profit, because we sell at a cost based upon high wages and purchased at a cost based upon low wages, and, assuming that the rate is about two to one (as statistics show it to be), we get two days' labor in exchange for one.

And this is the reason why it is to the interest of the United States to increase its foreign commerce and its exchanges of foreign products to the largest possible extent, provided always the rates of wages in this country are not thereby reduced.

And here the interests of the city of New York are in full harmony with the interests of the working classes, and the imposition of duties upon those articles which tend to diversify the occupations of the people and to maintain the highest possible rate of wages. I am not in favor of prohibition, but stand up for fair and open competition, because by it the consumer will get a lower average price for the supplies which he needs than he could possibly do if these supplies were produced solely at home or solely abroad.

As a representative of the interests of this city it would be my duty to take every possible step to extend and not to restrict its foreign commerce; but in the selection of the articles to be taxed it seems to me that it would be a mistake injurious to the workingmen here and throughout the land if they were deprived of the incidental advantages to be derived from revenue duties which do not prohibit but permit fair competition. It seems to me that a reduction in the rate of wages which would inevitably result from the removal of duties from these articles and their transfer to such commodities as tea and coffee, would be alike an injury to the workingman and the country at large. I am, therefore, for a revenue tariff based mainly upon articles which enter into competition with our own staple industry carried on at a higher rate of wages, but not by the expenditure of a larger amount of labor.

And in this position I am in strict harmony with the great lights of the democratic party, Jefferson, Jackson, Marcy, Wright, Walker and Guthrie, who always advocated "a free breakfast-table for the working men." If the democratic party has ever in any convention or elsewhere taken a position more advanced than this I do not know where or when it was, and I venture to predict that if it should do so, before the rates of wages are equalized throughout the manufacturing world, it will lose the sympathy and the votes of the workingmen, to which alone it owes its existence and its power.

It must always be borne in mind, however, that tariffs are only taxes in disguise, and that unnecessary taxation is the greatest enemy to productive labor and capital. Its weight falls first and exclusively upon labor, and it never reaches capital until labor is unable to pay. Hence the workingmen have a far greater interest than capitalists possibly can have in seeing that taxation is kept at a minimum, that the government is restrained within its proper sphere of action, and that its expenditures are economically and wisely made.

If the voters of this district should decide, therefore, that I am to represent their interests in the XLIVth Congress my vote and my actions while there will always be governed by the considerations which I have here stated, looking first to the steady employment of labor; secondly, to the largest possible compensation for that labor; thirdly, to the extension of the foreign commerce of the city of New York; fourthly, to the economical administration of the government and suppression of extravagance; fifthly, to that kind of legislation which will tend to a more general and equal distribution of the proceeds of industry among those who are engaged in its walks; and, lastly, to the establishment throughout the length and breadth of the land of such a just and proper government as we demand for ourselves in this State and this city.

Auriferous Magnetic Iron Sand in Vermont.

Along the course of White River, near the town of Gaysville, Vermont, there have been discovered very extensive and valuable deposits of magnetic iron sand, rich in gold. These deposits extend for nearly forty miles along the course of the stream, and have not yet been fully explored. Their origin is pronounced by geologists who have examined them to be alluvial, and they may be traced to a glacial period by the character and appearance of the rocks. The banks on either side of the stream consist of fine sand, clay, water worn stones of varied character, magnetic iron sand and gold of rare purity in scales and flakes. They are from 20 to 200 feet in hight. By the action of water the fine sand and clay were carried away, while the heavy gravel remained, forming natural riffles, in and among which the iron sand and gold were deposited and so accumulated from year to year. These deposits, which are still forming, vary from 6 to 30 feet in depth, and from 100 to 200 feet in width. They contain from six to eight per cent. of iron sand, and gold to the value of $2 to $4 per ton. The iron sand, after concentration by the very simple and primitive process now employed to separate the gold, has been found to yield from 68 to 70 per cent. of metallic iron, almost wholly free from foreign substances, and showing by analysis only a trace of either sulphur or phosphorus. The value of this sand for the manufacture of fine cast steel is undoubtedly very great. Experiments were made not long since at the University of Pennsylvania, by Prof. Genth, and a cast steel of superior purity was produced. Samples of the sand and of the metal made from it, which we have seen, show that it possesses a great economic value for steel making, also for the manufacture of very pure and fine wrought iron. At the present time no use is made of this iron sand. Mr. J. J. Saltery and others are engaged in concentrating it for the gold, and we understand the enterprise is yielding a very good profit, as the gold is very fine. The iron sand, however, has not been utilized, and a considerable quantity has already been accumulated. With their present limited facilities they are concentrating about thirty tons of the iron sand per day, and as charcoal can be had in the neighborhood at from eight to ten cents per bushel; water power for little or nothing; labor for $1·50 to $2 per day, and transportation at moderate cost by rail, it would seem as if the location was a favorable one for steel making on a very considerable scale.

Serfdom of the Scotch Miners.—The president of the Social Science Association, says *Iron*, touched on the too frequently forgotten fact that within the memory of living men the Scottish miners were serfs, sold with the soil, or transferred, it might be, by the caprice of masters, from one district of the country to another. There is a rather humorous example of this caprice related by Hugh Miller in his "Schools and Schoolmasters." A Scottish proprietor of mines had been visiting some friends at a distance, also in possession of collieries. In examining his friend's estate, he accidentally heard a collier talking in the peculiar dialect of his native district. Turning, in surprise, to the man, he asked how he came to have emigrated. The miner looked at him, and, with an air of mingled sadness and astonishment, said, "Do you not mind me? Your father sold me for a pony." In 1842, when Parliament issued a commission to inquire into the nature and results of female labor in the coal pits of Scotland, there was a collier still living that had never been twenty miles from the Scottish capital, who could state to the commissioners that both his father and grandfather had been slaves, that he himself had been born a slave, and that he had wrought for years in a pit in the neighborhood of Musselburgh ere the colliers got their freedom. Father and grandfather had been parishioners of the late Dr. Carlyle, of Inveresk. They were contemporary with Chatham and Cowper, and Burke and Fox; and at a time when Granville Sharp could have stepped forward and effectually protected the runaway negro who had taken refuge from the tyranny of his master in a British port, no man could have protected them from the Inveresk laird, their proprietor, had they dared to exercise the right common to all Britons beside, of removing to some other locality, or of making choice of some other employment. The peculiarity of this state of matters in Scotland was that the slavery of the Scottish miner was not a thing of ancient date or relic of early barbarism, but originated in decisions of the Court of Session.

Iron.

CLEVELAND.

CLEVELAND ROLLING MILL CO.,
MANUFACTURERS OF
BESSEMER STEEL RAILS,
Steel Plates and Forgings, Railroad Iron, Merchant Bar, Beams, Girders, Splices, Bolts, Spikes, &c., &c.
Office, Nos. 99 and 01 Water St., CLEVELAND, O.
A. B. STONE, Pres. H. CHISHOLM, V. P. & Gen. Supt.
E. S. PAGE, Sec'y.

Cleveland, Brown & Co.
IMPORTERS, MANUFACTURER AND DEALERS IN
IRON AND STEEL,
HORSE SHOES, HORSE NAILS,
NORWAY NAIL RODS,
NAILS, SPIKES,
"Standard Taper" Axles & Swedes Iron.
WINDOW GLASS,
Wrought Iron Pipe and Boiler Tubes.
Chains, Rivets, Nuts, Washers, and Heavy Hardware Generally.
25, 27, 29 & 31 Merwin Street,
CLEVELAND, OHIO.

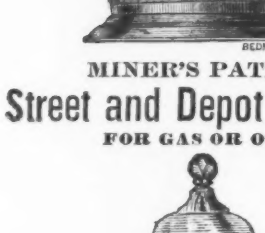
OLD DOMINION
Iron and Nail Works Company,
RICHMOND, VA.,
. E. BLANKENSHIP, Commercial Agent,
Manufacture
NAILS AND BAR IRON,
Bands, Scrolls, Horse Shoe Bars Nut and Rivet Iron, Spike Rods, Shatting, Bridge Bolts, Ovals, Half Ovals, Half Rounds, &c.

NEW HAVEN
Rolling Mill Comp'y
Manufacturers of Merchant, Horse Shoe, and extra quality Iron. Guaranteed to stand specified tests. Special orders taken for common Iron.
New Haven, CONN.

Jos. Scheider & Co
Manufacturers of
Japanned & Stamped
TIN WARE,

MINER'S PATENT
Street and Depot Lamps.
FOR GAS OR OIL.

AND
PATENT SELF-RIGHTING
CUSPADORES.
THE PATENT SELF-RIGHTING
CUSPADORE

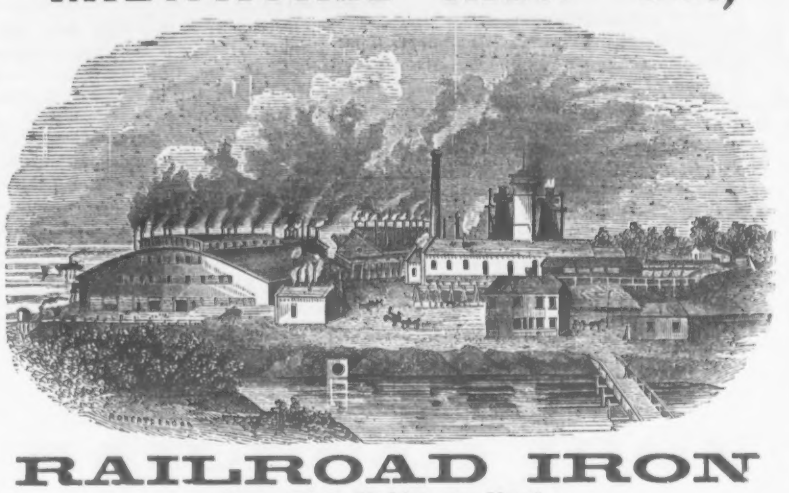


Is superseding all others. Being made of METAL it will not break, and as the lower part is CAST-IRON, will not corrode as quickly as other articles composed of sheet-metal for the same purpose, and if upset, it rights itself immediately.

58 Beekman St., N. Y
P. O Box 4391 New York.
FACTORY, PORT LAND CONN.

Iron.

MILWAUKEE IRON CO.,

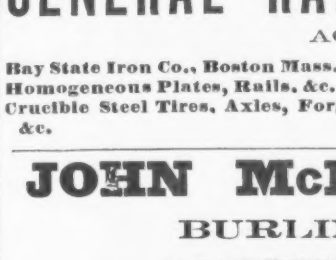


RAILROAD IRON
From 30 to 65 Lbs. per Yard.
Re-Rolling done on short notice.
PIG IRON.
BEST No. 1 FOUNDRY IRON constantly on hand and for sale in car-load or larger lots, at lowest market price.
Merchant Bar Iron.
A FULL ASSORTMENT—SUPERIOR QUALITY.
Address all correspondence to
MILWAUKEE IRON CO.,
MILWAUKEE, WIS.

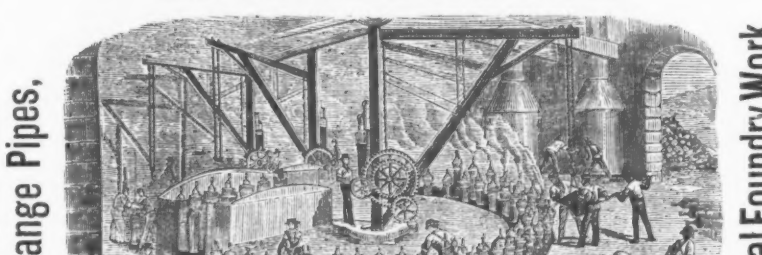
P. J. POTTER. JOHN W. HOFFMAN. WILLIAM TOOTHE. SOUTHARD HOFFMAN.
Potter, Hoffman & Co.,
110 Liberty St., N. Y.
GENERAL RAILROAD SUPPLIES.
AGENTS FOR
Bay State Iron Co., Boston Mass. Homogeneous Plates, Rails, &c.
Crucible Steel Tires, Axles, Forgings, &c.
Chrome Tool Steel and Spring Steel.
Nichols, Pickering & Co.'s Springs.
Sax, Kear & Co.'s Patent Steel Tired Wheels.

JOHN McNEAL & SONS,
BURLINGTON, N. J.

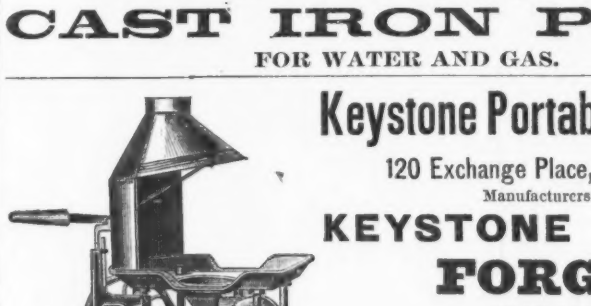
Flange Pipes, General Foundry Work.
CAST IRON PIPES
FOR WATER AND GAS.



Keystone Portable Forge Co.,
120 Exchange Place, Philadelphia.
Manufacturers of the
KEYSTONE PATENT
FORGES,
(FAN BLAST.)
23 Standard Styles, Large and Small, for Hand or Power, for
EVERY CLASS OF WORK.
H. S. MANNING & CO., Agents.
111 Liberty Street, New York.



Manufacturer of
Rules, Planes, Iron Planes, Grooving Plows, Gauges, Plumbs and Levels, Hand Screws, Bench Screws, Handles, Door Stops, Try Squares, Sliding T Bevels, Turning Saw Frames and Saws, Schell's Patent Gauge, Butler's Patent Gauge, Boring Machines, &c., &c.
Illustrated Catalogues of 1874 furnished on application. Address,
H. CHAPIN'S SON, Pine Meadow, Conn.



Having great facilities for doing cheap work as well as costly, using Waymoth's variety turning lathe, which in many kinds of work will lessen the cost at least one-half, we are prepared to furnish patentees and dealers with finished work in quantity.

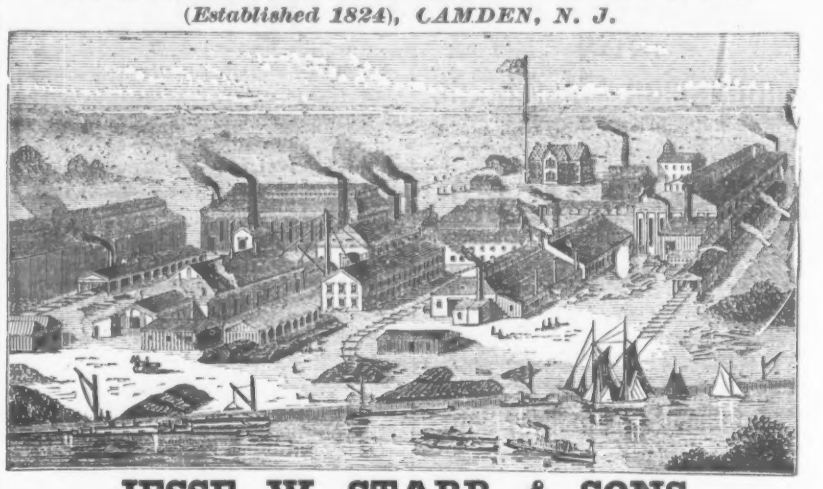
Iron.

CAST IRON FLANGE PIPES
Of any length or diameter, for Steam Engines, Exhaust Steam, Fire Purposes, Refineries, both Faced and Drilled and Plain. Also,
GAS and WATER PIPES
Of all sizes, with necessary connections for same.
LAMP POSTS, FIRE HYDRANTS, VALVES, &c.

R. A. BRICK & CO., Mfrs., 112 Leonard St., N. Y.

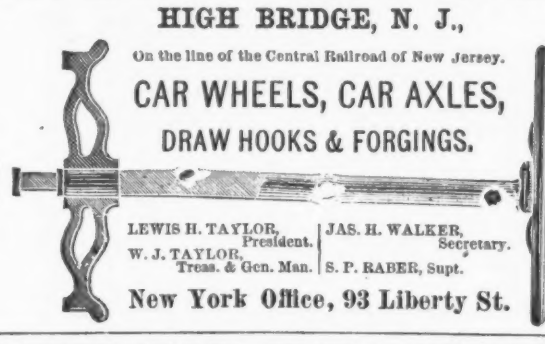
NEW HAVEN ROLLING MILL CO.,
Manufacturers of
HORSE AND MULE SHOES.
NEW HAVEN, CONN.

JESSE W. STARR. BENJ A. STARR. BENJ. F. ARCHER.
CAMDEN IRON WORKS
(Established 1824), CAMDEN, N. J.



JESSE W. STARR & SONS,
Engineers, Contractors and Manufacturers of Gas Apparatus.
And all the
Buildings, Tanks, Holders, &c., required for the Manufacture, Purification, and Storag of Gas, and Street Mains Requisite for its Distribution.
Plans, Drawings, and Specifications promptly furnished.
IRON FOUNDERS.
CAST IRON STREET MAINS, for Water and Gas, from One and a Half Inches to FORTY-EIGHT Inches in Diameter.
Stop Valves (all sizes), FIRE HYDRANTS, HEATING PIPES, BRANCHES, BENDS, TEES CASTINGS of any form or size required.
PHILADELPHIA OFFICE, - - 403 WALNUT STREET.

TAYLOR IRON WORKS,
HIGH BRIDGE, N. J.,
On the line of the Central Railroad of New Jersey.
CAR WHEELS, CAR AXLES,
DRAW HOOKS & FORGINGS.



STEEL TIRED WHEELS, made under Sax & Kear's Patent by which process a crucible steel tire is perfectly welded to a cast iron center.
STANDARD DRAW HOOKS, finished, ready for immediate use, with or without links.
LEWIS H. TAYLOR, President. | JAS. H. WALKER, Secretary.
W. J. TAYLOR, Treas. & Gen. Man. | S. P. RABER, Supt.
New York Office, 93 Liberty St.

ATKINS BROTHERS,
PROPRIETORS OF THE
Pottsville Rolling Mills & Pioneer Furnaces
POTTSVILLE, PENNSYLVANIA.
Having introduced New and Improved Machinery into their Rolling Mills, and manufacturing all their Iron from the ore, and also doing all Machine Work and Repairs in their own shops, they are enabled to produce
RAILROAD IRON
Of uniform quality, unsurpassed for strength and wear, and of any required length.
Address the Proprietors Pottsville, Pa.

The Britannia Ironworks Company, Limited,
Middlesbro' England,
MANUFACTURERS OF
ALL DESCRIPTIONS OF IRON RAILS
Surplus Stocks of Various Sections always on hand.
London Office: W. G. FOSSICK, 6 Laurence Pountney Hill, E. C.
Weekly Output, One Thousand Tons.

M. H. JONES,
COHOES, Albany Co., N. Y., Manufacturer of
AXES AND EDGE TOOLS,

Sole Manufacturer of the late TEN EYCK AXE MFG. CO.'S GOODS.
J. CLARK WILSON & CO., New York Agents, 81 Beekman Street.

The Pernot Rotary Puddling and Steel Furnace.

M. J. Petin has made an elaborate report on the workings of the Pernot furnace, previously described in these columns, of which the following is an abstract:

It is stated therein that with this new model, charges of 900 kilogrammes of fine or one ton of ordinary iron are worked with more rapidity than usual, and under the best conditions. In the case of fine iron, the waste has been about 2·7 per cent. in a production of 90 tons. The consumption of fuel is 1100 to 1200 kilogrammes of poor coal, which yields 20 per cent. of ashes by incineration per ton, and the cost of production, as shown by the books of MM. Patin and Gaudet, is less by about 40 fr. than by the old processes in the same establishment. This refers to fine iron. The new furnace has not yet been tried so carefully with ordinary pig, but the trials which have been made seem to indicate only 6 per cent. waste and the consumption of 900 kilogrammes of fuel but further information is promised in a few weeks.

Worked by relays of twelve hours, the production varies greatly with the quality of the iron, but it is double or triple that of the ordinary furnaces. With the pig iron of Pouzin 4½ tons are worked in the twelve hours. An operation lasts two hours, and 940 kilogrammes of iron in bars are produced from 1000 kilogrammes of pig. Seventeen or eighteen balls are obtained from a single furnace, the last ball as hot as the first, and the rolled bars are remarkably clean and exempt from flaws.

M. Petin declares that the Pernot furnace is entirely established in practice, that it is complete in its action, and that it produces with certainty all that is required of a puddling furnace, whether for fine or ordinary iron or puddled steel, of which, however, only five or six charges have yet been made with it, but with as much ease as iron. M. Pernot has applied his rotative furnace to the fusion of steel by adopting gas generators and the Siemens regenerators, and the success has been so great that the report states that rotation, by giving better heating and more rapid decarburation, so modifies the conditions that the new mode has no analogy with the ancient methods; and with the same generators as are used with a Martin-Siemens furnace, produces in a given time twice the amount of steel, with corresponding reduction in labor and general expenses.

These results would alone assure the success of the furnace, but it has the still further advantage that what was quite impossible with other furnaces is easy with this. Thus, gray pig has been treated directly without the addition of either iron or steel, and transformed, and then being recarbureted by spiegeleisen, on the Bessemer process, perfectly malleable steel has been run off, which made excellent rails; the analogy of the reactions with those of the Bessemer process is described as very great. Finally, steel rails have been melted perfectly without the addition of pig iron, but the operation takes from seven to eight hours.

The furnace bottom, or sole, is rotative and heated by the Siemens process; it is formed of silicious sand, beaten and baked. As soon as the furnace is heated it is charged with the total quantity of pig iron required, which is laid uniformly on the sole, as it turns round and presents each part facing the working door. When the pigs are raised to a high temperature the old rails are introduced in the same manner, no matter of what size, to 1 metre or 1200 metres. As the sole revolves in an inclined position, the heat penetrates regularly through the whole mass, and each piece of rail passes successively through the bath of iron, which now begins to fill the lower part of the furnace. This immersion of the old rails causes them to melt without passing through the condition of burnt metal, which happens with a furnace with a fixed bottom when the charge is too great to be covered by the molten iron.

This mode of charging diminishes the number of men required, and when the furnace is charged they are employed in other work. When charged the door is closed, and the sole continues to revolve at the rate of about two turns per minute, as during the charging. The charge is melted in two hours, and at about the end of the third hour samples are taken out to ascertain the condition of decarburation. When the operation is found to be sufficiently advanced, that is to say, when the metal is a little softer than is desired, a sufficient quantity of spiegeleisen is added to bring back the proper hardness, then another sample is drawn, and, if satisfactory, the steel is run off. Nothing remains on the bottom of the furnace, never is a piece of unmelted rail or a piece of metal adhering to it, consequently there is no preparation to be made before recharging, except beating the sole a little. The total time occupied by a charge, including reparation, is from three and a half to four hours, the charges are from 4 to 4½ tons, and 19 tons have been produced in twenty-four hours, with four charges and a half, and 21 tons with five charges; with men well practised more might easily be done, and the Siemens-Martin furnace, says M. Petin, produces at most 10 tons in two heats in twenty-four hours.

The advantages of the Pernot furnace are summed up as—(1) producing twice the amount of the Martin Siemens' furnace; (2) diminution to the same extent in the cost of labor, fuel, and in general expenses; (3) cost of production, on the average of three weeks' work of all kinds, 223 fr. 87c., whereas it is 264 fr. 26c., with the Martin-Siemens' furnace; (4) the repairs of all parts of the furnace are easy and rapid. The furnace, with the pivot on which it revolves, is fixed on a carriage with four wheels, on rails, and being run back the whole of the upper part of the furnace, is wide open, and in five or six hours becomes cool enough for any repairs to be made; the most complete repairs can be executed in ten hours; and allowing ten hours for reheating, the most important repairs only cause a loss of about twenty-six hours. In addition to the figures given above, the report contains tables of all the items of cost of working with the Pernot furnace as compared with the old system in use at the works of St. Charmond. The results are as follows: Puddlage of fine iron, 246 fr. 74c. per ton, against 296 fr. 90c.; ordinary iron, 178 fr. 44c., against 195 fr. 22c.

Recurring to the treatment of pig iron alone for the production of steel in this furnace, a new order of facts presents itself. The cost of a furnace may be set down at 35,000 fr. to 40,000 fr.; three furnaces, producing 15 to 20 tons each in twenty-four hours, would replace two Bessemer converters; that is to say, a capital of 120,000 fr. would produce as much as one three times as great, and give products at a price equal to Bessemer first fusion. And a further economy may possibly be effected by directing the iron from a blast furnace on the rotative sole; moreover, this process applies to small as well as large operations. A small establishment would have its one furnace, a large establishment several; the cost of keeping in order great machines like the Bessemer converters would be entirely escaped.

This process, says M. Petin, has been tried for three months without a failure, and anybody, therefore, may safely adopt it. (1) Its installation is cheap in relation to its powers of production; (2) it does not require officially trained men; (3) the machinery is easily kept in order; (4) the cost of production is very moderate, although it cannot yet be precisely stated; (5) the operator has always full command over the operation, and can modify it in one direction or the other up to the moment of the running, an incontestible advantage over the Bessemer process; (6) the steel is perfectly homogeneous, as the stirring caused by the rotation of the sole of the furnace is much more complete than in the Martin process.

From another source we have an account of experiments made with Belgian pig iron. White, strong iron from the blast furnaces of Ougree, gave about 5 per cent. of waste, and consumed 70 lb. of coal per 100 lb. of iron puddled; 5 1-10 tons were obtained in twelve hours. The mixture of two-thirds spiegel and one-third of the white pig, mentioned above, gave excellent results; the waste did not exceed 3 per cent. Pure spiegel pig produced a beautiful metal, completely equivalent to steel. Finally, the pig iron used by the Cockerill Society for rail heads was tried at St. Chamond not many days since, in presence of the directors of the rolling mills of the society. In twenty-seven hours' work, 9387 k. of iron were produced from 10,000 k. of pig, with a consumption of 229 k. of coal per 1000 k. of iron produced. The raw iron presented on fracture a fine and close grain, brilliant, well purified and in every way suited for rail heads.

Two establishments at Charleroi are said to have arranged terms with M. Pernot for the adoption of this furnace, and the Ougree iron works have decided on its adoption.

Sheet Iron Gas Pipes and their Power of Resistance.

The Paris Gas Company have lately laid down a main one metre in diameter and one kilometre in length from St. Maude to the Place du Trone. Hitherto sheet iron pipes covered with bitumen have not been applied to mains of that dimension, and it was important to ascertain how such pipes of a moderate thickness would answer beneath the public roads, where they would be submitted to the permanent and accidental pressure tending constantly to produce deformity.

The company had already adopted sheet iron pipes of 70 centimetres diameter without any important deformity being produced, and it was only necessary to submit the metre pipes to similar pressure to ascertain what effect it would produce, all theoretical calculation being deemed untrustworthy. A comparative trial was therefore made with the aid of an apparatus planned for the special purpose. A pipe of 70 centimetres diameter of the ordinary thickness of four millimetres, and a pipe of one metre and five millimetres thick were laid in the ground in the mode adopted for the mains in Paris, the trenches having been dug in such a way that there was a space of a quaster of a metre between each side of the tube and that of the trench, and that the filling-in above each pipe should be one metre in depth. The pipes in ordinary use are four metres in length, but in order to spread the weight over a larger surface, pipes six metres long were adopted for the experiment, and one end of each was left open to allow of access to the interior.

The trial was made by placing on the soil above the pipes pigs of lead from four up to twenty tons weight, which were supported on a platform composed of timber, and having a surface of eight square metres. This platform was laid upon two pieces of timber, each 50 centimetres long and 25 centimetres wide, and placed one metre 80 centimetres apart, which represented the tires of the two wheels of one of the axles of a locomotive of forty tons. The apparatus for the indication of the deformities produced consisted of a circular disc of sheet iron with nine radial rods, each supported by two small guides screwed to the disc and provided with a spiral spring which kept its outer end pressed against the inner surface of the pipe. The guides of the rods were each provided with a set screw to hold the latter in place while the apparatus was being placed in the pipe. The only object of the rods at the lower part of the disc was to maintain the center of the latter in the axis of the pipe, and when the apparatus was in place both the guides of these lower rods were screwed firmly to the disc. Thus any alteration in the vertical diameter was measured from the center. In the center of the disc was an opening 20 centimetres in diameter, fitted with a piece of iron covered with leather, which carried a circular piece of paper. Each iron rod on the upper part of the disc was fitted with a pointer held in a small tube by a spring and provided with a copper button. When the apparatus was in its place a finger was pressed on each button, and the position indicated by pricking through the paper, the leather behind preventing the point of the needle being turned. When a load was laid on the platform above the position of the pointers was again pricked through the paper, and the difference between the two marks showed the amount of deformity produced. The results obtained were then transferred to a diagram of the same section as the pipe itself.

By comparison of the diagrams obtained, it was found that with a load of twenty tons pressing on the pipes for 130 hours that the one metre pipe had given way vertically to the extent of 0·0285 metre, or 2·85 per cent., and the smaller pipe 0·031 metre, or 4·30 per cent. The conclusion was that a pipe one metre in diameter and five millimetres thick offered greater resistance than a pipe 70 centimetres in diameter and four millimetres in thickness, which had already proved itself satisfactory in practice. It was found by further experiments that when a pipe had once been deformed by a heavy load, it only recovered itself to the extent of a few millimetres when the load was removed. After these experiments a main one metre in diameter was laid from the gas works at Saint Maude to the Place du Trone, and as the joints were made they were tried with compressed air under a pressure of 70 millimetres of the mercury manometer, the pipes themselves having been previously tested under a pressure of five atmospheres. These trials revealed a few defects which were easily repaired. Since that time the main in question has been in use constantly, without exhibiting anything contrary to the results of the experiments above recounted.

Zinc Ore In Blair Co. Pennsylvania.

The Tyrone *Herald* says:

"A few days ago we visited the farm and examined (in company with the prospector, Mr. Isaac Renner, and Mr. Kinch himself) the shafts sunk in the earth where the prospects for zinc appeared to be the brightest. That there is an immense body of zinc on the premises there is no question. Mr. Kinch's farm is located on the northeastern side of the gap leading from the old Caldwell tannery. On the southeastern side of the slope leading down to the road in the gap, a quarter of a mile from the line of the Pennsylvania Railroad, is the place where the prospecting has been going on. Three shafts have been sunk, each of them being about nine feet deep.

"The ore is found in a solid body from the bottom of the soil down. In fact the zinc rocks project above the earth in many places. It may be possible that the half of the farm is underlaid with this valuable mineral, but the fact that thousands of tons lie there, with a very light covering of soil on top, has already been demonstrated. Mr. Renner has prospected in different places on the side of the hill, and in every instance has found a body of fine zinc ore, from the place he began to the place he ceased work, a space of one hunddred rods in length and some thirty feet in width. The bottom of the ore has not been reached, nor is it likely to be found short of an immense depth, if present discoveries indicate anything. The slope of the rock is about fifty-three degrees, and is very regular, having a decided appearance of first formation. On the surface of some fifty acres of the farm are to be found pieces of this ore fully as rich in quality as that taken from the shafts sunk.

"This valuable mineral was discovered on Mr. Kinch's farm by Mr. Renner, about the 20th of August last, since when every day has given the proprietor more assurance of independent wealth as a result of the first prospecting. Mr. Kinch has not had a close analysis of the ore made yet, but from tests already made it is supposed that an average yield of the ore will be about fifty per cent. A small proportion of lead is found among the zinc, but not enough to justify separation. We are told that bodies of lead ore are also found underneath zinc, and it may prove to be the case in this instance.

"Experienced men say that there is a body of zinc somewhere in Sinking Valley, and present indications are largely in favor of Mr. Kinch's farm being at least a portion of said bed. The farm purchased by the zinc company, on the opposite side of the ravine from Mr. Kinch's farm, has been thoroughly worked. On this farm it appears that the zinc was found in loose rocks, supposed now to have been thrown from Mr. Kinch's place across by an eruption of the earth in that vicinity at one time."

After all the fuss about the Society of Arts prizes and the formal competition among the manufacturers and inventors of economical heating arrangements at South Kensington, a few months ago, it appears there is to be no award, as the judges have not considered any exhibit sufficiently original and perfect to merit. It is true the exhibits, generally considered, were not distinguished for novelty in principle, but here and there were some excellent articles deserving of commendation, and therefore we think a prize should have been awarded. Two winters have been allowed to slip by while all this red tape and nonsense has been keeping the anxious competitors in suspense, and the public on the very tiptoe of curiosity, so we think the committee or council, or whatever the judges may be termed, ought at least to publish some kind of a report, even if only as an apology or explanation. As matters stand at present, the competitors must feel perfectly disgusted, and the public as if they had been hoaxed.

BUSINESS ITEMS.

NEW YORK.

The blast furnace at Fort Edward was lately blown out for repairs, the first time in two years. The works turn out about 10,000 tons of pig iron per year.

PENNSYLVANIA.

Messrs. Morris, Tasker & Co., of Philadelphia, it is stated, have purchased the Rogers farm, near New Castle, Delaware, to establish a new locomotive works, or transplant the Baldwin works from Philadelphia.

The Bethlehem Iron Company has leased the iron furnace recently built at Freemansburg, and known as the Northampton Iron Works.

The Pennsylvania Steel Company, at Baldwin, have just relined their two converters, after a run of 5276 heats on the old lining, having made the entire product of the last eleven months without relining. This extraordinary result is partly due to the possession by the company of a fine deposit of refractory stone near their works, commonly known as ganister, and partly to superior skill in manipulating the stone and its mixtures.

After a cessation of more than a year the fires in the old "Rough and Ready Mill," Danville, more recently known as the National Iron Works, were lighted up on Tuesday morning, under the management of the Hancock Steel and Iron Company.

There is no lack of work at the Keystone Bridge Company's establishment, which is running full handed, with more orders than they ever had before. They are now engaged on a large fine span bridge for Trenton, N. J.

A most extraordinary day's work has been done in the rail mill of the Pennsylvania Iron Works, Danville, Montour county. There were heated, rolled, sawed, hot-piled, straightened and punched and in all particulars made ready for use, *one hundred and fifty-six tons of rails*, a feat that has never before been accomplished inside of twelve hours, through one set of rolls and the usual force of men.

PENNSYLVANIA.

The Hopewell Furnace, Chester county, is about suspending operations.

The Huntingdon Car Works have received an order for fifty new cars that are to be built immediately.

The rolling mill of Messrs. Light & Bro., at Lebanon, is making sheet iron on an average of 100 tons per week.

MASSACHUSETTS.

The Mount Hope Iron Works have just completed at Somerset a spacious building, which is to be used as a machine shop. It is within the circuit where it is intended to erect the new iron works, the boilers for which have already been constructed at Fall River.

The foundry of the American Tool Company, at Hyde Park, is running every other day.

Business at the works of the Fitchburg Machine Company is quite brisk, the company having received numerous orders of late for their fine machinery. Quite a large contract from Glasgow, Scotland, is among the lot.

OHIO.

A fair business is being done at the Forest City Spring Works, Cleveland, where seven fitters are now employed. From January to August 1 the company made and sold a larger amount of goods by $8000 than they did the whole of last year. They contemplate adding seat springs to their list of manufactures, and are making arrangements with that object in view. They also deal largely in carriage goods and saddlery hardware.

Messrs. W. B. Pollock & Co., of Youngstown, have been awarded the contract for the iron work on the addition to the infirmary in Trumbull county. They receive $2550 for their work.

The Car and Car Wheel Works of John Gill, Columbus, stopped work entirely about three weeks since and are now idle, with the exception of making repairs to buildings and machinery.

Two very large furnaces are being built between Bedford and Newburg, by an English firm. These furnaces, it is reported, will be among the largest in the United States.

The Columbus Rolling Mill rolled 124 tons of reheated iron on Monday, Oct. 19, the largest roll of reheated iron ever made in this country. There were seven furnaces and one squeezer used.

WEST VIRGINIA.

They are putting in new muck rolls at the La Belle Mill, Wheeling.

The Hinge Factory at Wheeling are filling an order for parties in Troy, N. Y., of 200,000 curry comb backs.

CALIFORNIA.

The Kimball Manufacturing Company, of San Francisco, is building six passenger coaches for the North Pacific Coast narrow gauge road. The bodies of these cars are 35 feet long and 7¼ feet wide.

The Coal Measures of the United States.

The following useful summary of the coal measures of the United States has been made by Professor C. H. Hitchcock, for his forthcoming Geological Atlas of the United States. It must be stated, however, that the summary includes only those coals belonging to the carboniferous systems:

1. *New England Basin.*—This basin lies in Massachusetts and Rhode Island, and is estimated to cover 750 square miles. The coal is plumbaginous anthracite, used to advantage in some smelting furnaces. Perhaps eleven beds may exist; best seen in Portsmouth, Rhode Island. The maximum thickness is 23 feet. The whole carboniferous system is supposed to be 6500 feet thick, of which 2500 pertain exclusively to the coal measures.

2. *Anthracite Basins in Pennsylvania.*—This is the most important coal district in the United States. There are four basins, having an area of 410 square miles, not including the Broad Top semi-anthracite, which amounts to 24 more. The measures are from 2000 to 3000 feet thick. The number of distinct beds varies from two to twenty-five, according to the depth of the basin. The maximum amount near Pottsville is given at 207 feet, while the average cannot be far from 70 feet (H. D. Rogers). Macfarlane estimates the area of the anthracite fields in Pennsylvania at 472 square miles, which is 62 square miles more than Roger's estimate.

3. *Appalachian Coal Field.*—This field embraces an area of 62,025 square miles, extending from Pennsylvania to Alabama.

In Pennsylvania the aggregate thickness of the measure is from 825 to 2535 feet. The area of the bituminous coal is 12,222 square miles, with an average thickness of 40 feet of coal. (H. D. Rogers).

In Maryland the area is 550 square miles, in three separate basins. The strata are 1500 feet thick. There are thirty-two beds in all; one of 14 feet thick, three of 6 feet each, others from 1 to 5 feet thick. (P. T. Tyson).

In Virginia (chiefly West Virginia) the coal area embraces 16,000 square miles. On the Kanawha the strata are 1250 feet thick, with twenty-four beds of coal, of which eleven have an aggregate of 51 feet thickness. The coals seem best developed on this river. (T. S. Ridgway).

In Ohio, Dr. J. S. Newberry states the area to be more than 10,000 square miles, with a thickness of 1500 feet, and ten workable beds of coal, corresponding in number and thickness to those of Pennsylvania and West Virginia.

In Eastern Kentucky the area has been stated to be 10,000 square miles. Macfarlane puts it at 8983 square miles, said to have been derived from actual measurement.

In Tennessee, Professor J. M. Safford states the area of the measures to be 5100 square miles. One characteristic section gives a thickness of 14 feet. The beds vary locally in their dimensions, some of them being 9 feet thick, but thinning out very rapidly.

In Georgia the area may be represented by 170 square miles.

In Alabama the area marked upon the map amounts to about 9000 square miles.

4. *Michigan Basin.*—This basin has an area of 6700 square miles, with 123 feet of measures and 11 feet (maximum) of coal. In the center the coal is thickest, thinning out to nearly the thickness of paper around the edges. (A. Winchell).

5. *Illinois Basin.*—This basin, including Indiana and Western Kentucky, covers an area of 47,188 square miles.

In Illinois the measures occupy 36,800 square miles, are 600 feet thick, and contain ten beds of coal, with an aggregate thickness of 35 feet. (A. H. Worten).

In Indiana the measures occupy an area of 6500 square miles, are 650 feet thick, and contain thirteen beds of coal, with an aggregate thickness of 31 feet. (E. T. Cox).

In Western Kentucky the measures are 612 feet, including the millstone grit, and carry eleven beds of coal (E. T. Cox). Their area in Western Kentucky is 3888 square miles. (S. S. Lyon).

6. *Missouri Basin.*—This basin extends from Iowa to Texas. Estimating from Hayden's map, the coal area of Nebraska at 3600 square miles, the total area of this great basin must be some 97,200 square miles.

In Iowa, Professor White's map shows an area of 18,000 square miles, which is divided into three parts, each about 200 feet thick. The two lower divisions contain the workable coal, which amounts to 8 feet in the second, but to only 20 inches in the upper. As the highest division is everywhere underlaid by the others, the whole area must be regarded as workable.

In Missouri, Professor G. C. Swallow estimates the coal area at 27,000 square miles, and in Kansas at 17,000 square miles. The measures are 2000 feet thick, with twenty coal beds, from a few inches to 6 feet thick.

In Arkansas there seem to be only two beds of coal, which lie below the coal measures proper beneath the conglomerate. (Lesquereux.) D. D. Owen speaks of some beds from 4 to 5 feet thick, and estimates the area occupied by productive beds at 12,000 square miles.

In the Indian Territory little is known of coal. The officers of the Missouri, Kansas and Texas Railway Company find good banks of coal at several places along their line, several feet thick. The area upon the map amounts to as much as 13,600 square miles. Since the completion of the map it has been ascertained that the coal measures are covered by the cretaceous formation for a width of about thirty miles along the valley of the Red River in Texas and the Indian Territory; and also that the tertiary area, extending southerly from Preston, is probably of carboniferous age. These discoveries will enlarge rather than diminish the size of the Missouri basin, since the two fields are probably connected beneath the cretaceous beds.

In Texas, according to A. R. Roessler, in the "Almanac," the coal measures occupy 6000 square miles. A bed of coal has been reported near Fort Belknap as 4 feet thick.

7. *Territories.*—In Arizona, near Camp Apache, Mr. G. K. Gilbert, of the expedition under the immediate direction of Lieut. G. M. Wheeler, reports a bed of coal belonging to the true carboniferous series. It is probable that future explorations may develop other coal bearing areas in the Territories.

In respect to other coals, we have various localities of commercial importance, especially in Eastern Virginia and near the Union Pacific Railway. They usually belong to the triassic or cretaceous formation, and there are lignites in the tertiary formations.

GEORGE GUEUTAL & SON,

39 West 4th St., New York.

IMPORTER OF

Wood Screws, Steel in Sheets,

BAND SAWS, TOOLS FOR BRAZING, &c.

Bed Screws, Pin Hinges, and Wire Nails a Specialty.

H. W. PEACE,

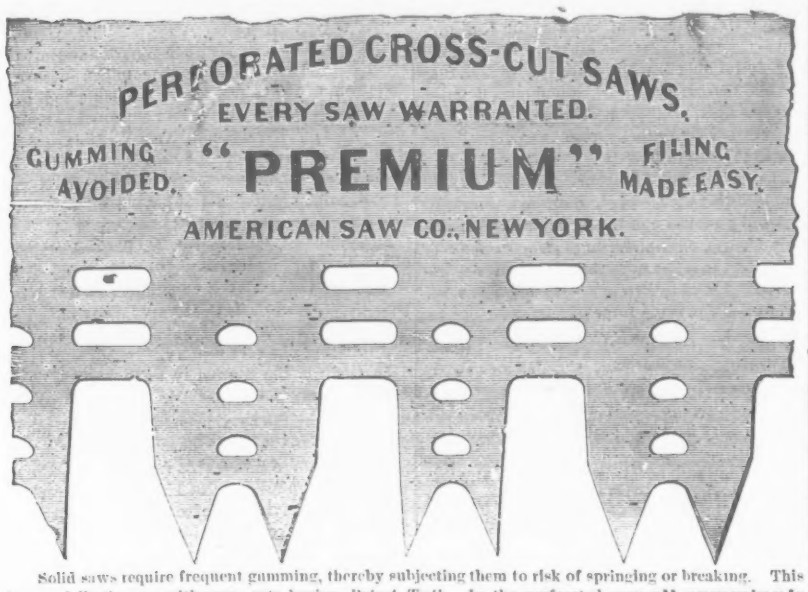
MANUFACTURER OF

SAWS OF ALL KINDS.

FACTORY, WILLIAMSBURGH, N. Y.

AMERICAN SAW CO.,

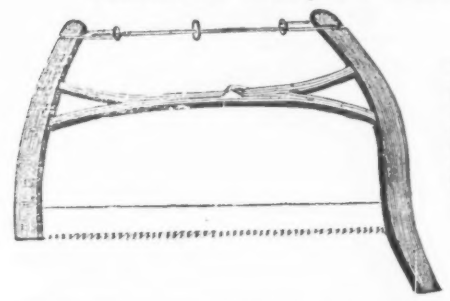
TRENTON, NEW JERSEY.



Solid saws require frequent gumming, thereby subjecting them to risk of springing or breaking. This is especially the case with cross cuts having *Patent Teeth*. In the perforated saws **all gumming is avoided** and the teeth are easily kept long and in *proper shape*, saving *file-s, labor, expense* and *vexation*. As is well known, our saws cut faster, smoother and easier than any other.

MOVABLE-TOOTHED CIRCULAR SAWS AND SOLID SAWS OF ALL KINDS.

Hankins' Elliptic Forked Saw Frame.



Patented June 28th, 1870.

The annexed engraving represents HANKINS' ELLIPTIC FORKED SAW FRAME, which commends itself to the trade for its simplicity of construction. The Forked Brace being all in one piece, without any center bolt, secures for the Frame great strength and durability. These Frames are put up with my best Webs, marked "No. 40, Harvey W. Peace."

HARVEY W. PEACE,

VULCAN SAW WORKS,

WILLIAMSBURGH, N. Y

THE SILVER STEEL DIAMOND CROSS-CUT SAW.

$1.50 Per Foot.

PATENT HANDLES AND GAUGE INCLUDED.

Patent Secured

THIS new Saw, which is destined to take the place of all Cross-cut Saws in point of **SPEED AND EASE**, is manufactured by **E. C. ATKINS & CO., Indianapolis, Ind.,** who are the

SOLE MANUFACTURERS FOR THE UNITED STATES.

So confident are we that this is the best Cross-cut Saw in the market that we CHALLENGE THE WORLD. Orders promptly filled.

E. C. ATKINS. H. KNIPPENBERG. **E. C. ATKINS & CO.**
Saw Manufacturers and Repairers, Indianapolis, Ind.

J. FLINT & CO.

Manufacturers of all kinds of SAWS and PLASTERING TROWELS.

ROCHESTER, N. Y.

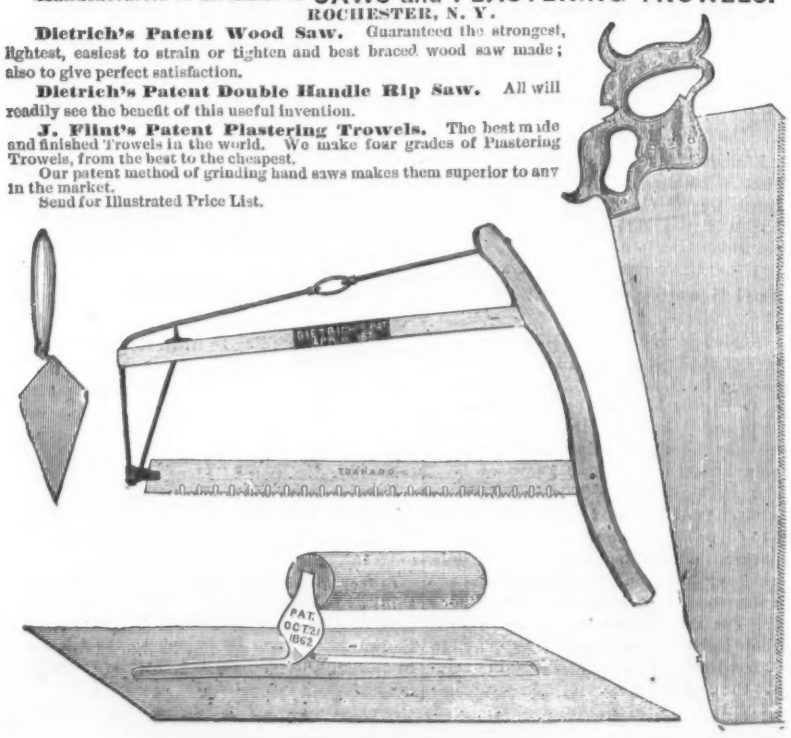
Dietrich's Patent Wood Saw. Guaranteed the strongest, lightest, easiest to strain or tighten and best braced wood saw made; also to give perfect satisfaction.

Dietrich's Patent Double Handle Rip Saw. All will readily see the benefit of this useful invention.

J. Flint's Patent Plastering Trowels. The best made and finished Trowels in the world. We make four grades of Plastering Trowels, from the best to the cheapest.

Our patent method of grinding hand saws makes them superior to any in the market.

Send for Illustrated Price List.



E. M. Boynton,

80 Beekman Street,

NEW YORK,

Manufacturer of

Saws of all kinds.

Also Sole Manufacturer of

LIGHTNING SAWS.

Two Direct Cutting Edges, instead of one Scraping point.

Note extra steel and durability over the old **V**, outlined on **M** tooth.

I am willing and extremely anxious, on proper notice, to accept a Challenge from H. Disston & Sons, or any responsible Saw Manufacturer, and am ready to back my words with appropriate deeds and $500 expense, if beaten.

N. B.---With Hand, Billet or Cross Cut Saw, $500 on each.

E. M. BOYNTON.

BIRMINGHAM, ENGLAND

SAMUEL A. GODDARD & CO.,

Commission Merchants and General Agents, execute orders for British manufactures on the lowest terms, and collect and forward goods for a very moderate payment. Agents for the sale of North Staffordshire Iron of a standard quality.

RIEHLE BROTHERS,

Ninth Street, near Coates, Philadelphia.

New York Store, 93 Liberty Street,
Pittsburgh Store, 285 Liberty Street,

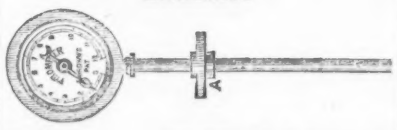
"Patented" Furnace Charging Scale.

Double Beam R. R. Track Scale, Compound Parallel Crane Beams, &c. Patented First Power Lever Wagon Scales. Testing Machines any capacity.

PYROMETERS for BLAST FURNACES.

E. BROWN'S STANDARD PORTABLE,

E. Brown's Improved Gauntlet



Edw. BROWN,

311 Walnut St., Philadelphia.

ALSO FOR SALE

PYROMETERS

For Baker's Ovens, Boiler Flues, Galvanizing Baths, Oil Stills, Vulcanizers, Superheated Steam.

E. Brown's Portable Blast Gauge for the plug hole, Steam Gauges, Blast Gauges, Mercury Gauges, Recording Steam Gauges, Engine Counters, Indicators for ascertaining the Horse Power.

Over 300 "Gauntlett" and 100 Portable Pyrometers are now in use at Blast Furnaces.

Circulars on application.

WHEELER, MADDEN & CLEMSON,

Manufacturers of Warranted Cast Steel

SAWS

of every description, including

Circular, Shingle, Cross Cut, Mill, Hand, Roberts' and other Wood Saws,

&c., &c

Cast Steel Files

of the well known brand of

Wheeler, Madden & Clemson.

FACTORIES:

Middletown, Orange Co., N. Y.

BRANCH OFFICE:

97 Chambers Street, New York.

BRUNDAGE FORGED HORSE NAILS,

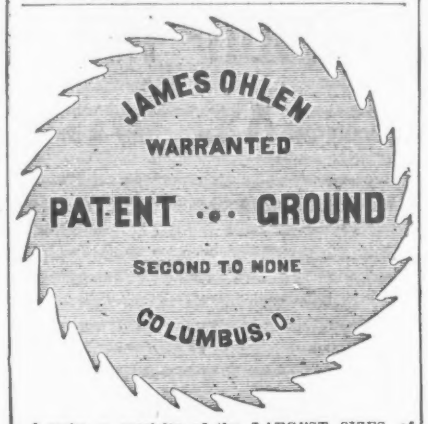
Manufactured from

BEST NORWAY IRON,

by BRUNDAGE & CO. Sold by

WHEELER, MADDEN & CLEMSON

Middletown, Orange Co., N. Y.



I make a specialty of the LARGEST SIZES of **Circular Saws,** and call particular attention of lumber manufacturers to the following points of excellence:

Evenness of Temper,—The peculiar structure of my furnace subjects all parts of the saw to a DEAD heat, and when dipped in the oil bath secures perfect uniformity.

Perfect Accuracy in Thickness.—My saws are ground on a patent machine, automatic in its operation, grinding off the thick places upon the plate before the thinner parts are reached, and when the saw is removed BALANCES PERFECTLY, which is proof positive of the right accomplishment of the work.

Properly Hammered.—Great care is taken that no saw shall leave my works without due attention in this important particular. A saw too tightly strained upon the rim, or too loose in the center, cannot be successfully run—hence the importance of so hammering the saw as to effect equal strain in all its parts, and at the same time RUN TRUE. This department is under the personal supervision of myself, who has devoted over *twenty years* to the art of saw making.

I am sole proprietor and manufacturer of the celebrated **"Challenge" Cross-Cut Saw.** Price Lists of all kinds of saws sent on application.

JAMES OHLEN.

The Sugar Maker's Friend.

PRICE, $4.50 per hundred.

More agents wanted to canvass for the sale of **Post's Patent Galvanized Metallic Eureka Sap Spout and Bucket Hanger.** Samples, Circulars and Terms sent on receipt of 25 cts to pay postage. Address,

C. C. Post, Manufacturer & Patentee, Burlington, Vt.

VAN WART, SON & CO.

Hardware Commission Merchants,

BIRMINGHAM, - ENGLAND,

Agents,

VAN WART & McCOY,

43 Chambers Street, New York.

George H. Gray & Danforth,

48 India Street, Boston.

F. W. TILTON,

17 Old Levee Street, New Orleans.

At each of these places a complete assortment of samples of Hardware and Fancy Goods will be found, including all new descriptions. Sole Agents for

John Rimmer & Son's Celebrated Harness and other Needles.

OSCAR IRVING VAN WART & Co.,

FORWARDING AGENTS,

2 South John Street, LIVERPOOL.

SCHOLEFIELD, GOODMAN & SON.

(Formerly JOSHUA SCHOLEFIELD & SONS.)

GENERAL

Hardware Merchants,

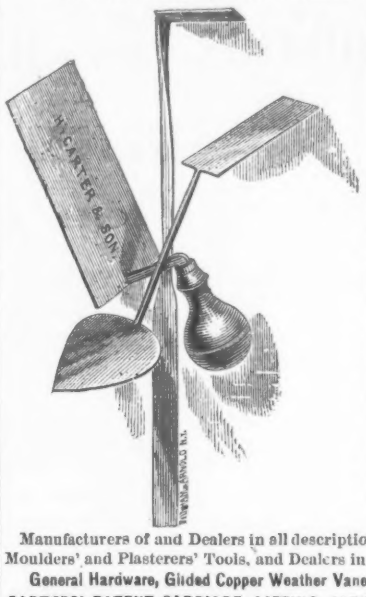
BIRMINGHAM, - ENGLAND.

Agents and Sample Rooms.

New York—Edward Frith, 16 Cliff Street.
Boston—H. L. Richards, 18 Batterymarch, Street.
New Orleans—R. Rhodes, 71 Camp Street.
Montreal—J. J. Evans 14 St., John Street.

H. CARTER,

290 PEARL ST., NEW YORK.



Moulders' and Plasterers' Tools.

Manufacturers of and Dealers in all descriptions of Moulders' and Plasterers' Tools, and Dealers in

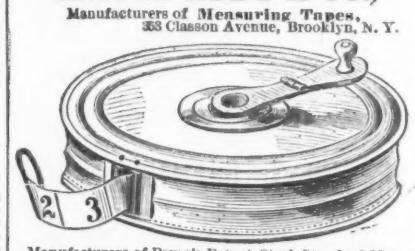
General Hardware, Gilded Copper Weather Vanes.

CARTERS' PATENT CARRIAGE LIFTING JACK. &c

GEO. M. EDDY & CO.,

Manufacturers of **Measuring Tapes,**

353 Classon Avenue, Brooklyn, N. Y.



Manufacturers of Paine's Patent Steel Standard Measuring Tapes, for Surveyors, Engineers and Mechanics requiring a correct measure of great length according to U. S. Standard. Also of Tape measures for the same trades, Lumbermen, Machinists, Tailors, Shoemakers, Dressmakers &c. Catalogues on application.

Backus's Patent Bit Brace

AND

Angular Extension BORER.

Angular Extension Borer.

Q. S. Backus,

SOLE MANUFACTURER OF

ANGULAR EXTENSION BORER.

Salesroom, 82 Chambers St., N. Y.

This tool can be used in any brace, at any angle, and also for straight work. Is the best and most convenient tool of its kind ever offered to the public. Eight thousand sold the first year.

Also Manufactures the Straight Extension

Backus's Pat. Improved Bit Brace.

The socket is arranged so that the strain does not come on the jaws, but on the square hole which fits the shank of the bit. The jaws attached to the sleeve hold the bit firmly in the square, and center it truly. The sweep is of wrought iron. The general finish of the stock is good. Its appearance is neat. Mechanics who have used it unanimously pronounce it superior to all others; and we offer it to the trade as the strongest, most simple, and quickest operating brace in the market. We manufacture five sizes. The number of inches of sweep corresponds with the commercial number of the list.

Section of Socket.

PHILADELPHIA CORRESPONDENCE.

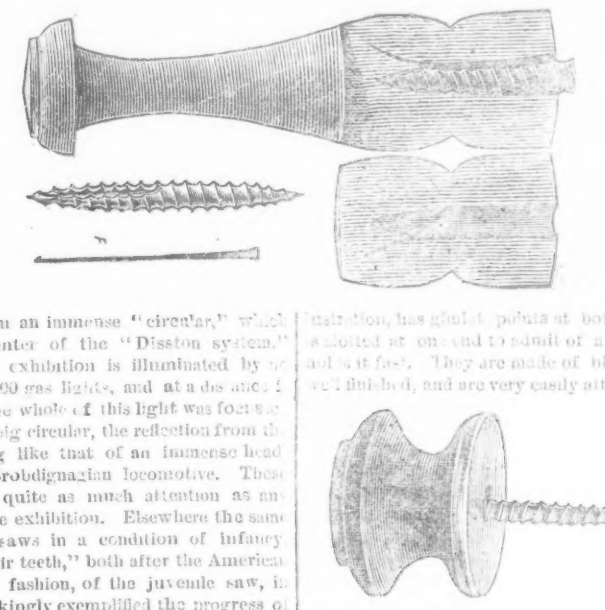
PHILADELPHIA, Oct. 26, 1874.

Those of your readers who may have visited the present exhibition of the Franklin Institute, and they are numerous without doubt, will fully appreciate my frequent reference to it in these letters. Not only does it form an especially interesting feature in our city life, but the visitor returns again and again to examine some unseen article, or to further study the wonderful exhibition of machinery in operation. Extended as your space is, I could occupy every page in your issue with descriptions of articles strictly confined to the iron and metal trades, here on exhibition, and yet not include all shown. So little has been said of the actualities of the show, that I cannot do better than devote a large part of my space to it. Perhaps there is nothing more interesting in the exhibition than the display of steel and steel tools. The Midvale Steel Works has an especially fine display of various steels, crucible and Siemens-Martin, as well as tires, cast steel railway frogs and bar sections in quantity. Some of the fractures of crucible steels shown by them fully equal in grain any foreign samples I have ever examined. Numerous pieces of test bars are also shown with breaking strains, and figures of tensile strength far ahead of those laid down in the test books. A good evidence of the toughness and strength of the Martin steel is here shown in a full sized rail of probably 60 lbs. to the yard, twisted from end to end in a complete spiral without seam or crack. Several other exhibitors of steel make equally fine displays, and one could spend a long time examining their samples with profit. As usual, ahead of competitors, the Disston's have exhibited the most magnificent collection of saws and other products of their works possible. These are arranged in a large case, some eight or ten feet square, all radiating from an immense "circular," which forms the center of the "Disston system." At night the exhibition is illuminated by no less than 28,000 gas lights, and at a distance it seems as if the whole of this light was focussed in Disston's big circular, the reflection from the case working like that of an immense head light on a Brobdignagian locomotive. These saws attract quite as much attention as any feature of the exhibition. Elsewhere the same firm show saws in a condition of infancy "cutting their teeth," both after the American and English fashion, of the juvenile saw, in which is strikingly exemplified the progress of Young America. The Disston help to tooth cutting, as shown by his machine, enabling the formation of 1500 perfect teeth per minute, while the English opponent, as now in vogue, cuts but 50 teeth. The machine shown by Disston works very rapidly with but little noise, and the saws are "toothed" as fast as they can be fed to the rollers running over the dies or cutters.

For the mounted machinery it would be doing injustice to hundreds of exhibitors to specify a few, but this is all that can be attempted in machine tools, especially in what the French call "*le systeme* Sellers." I can do most justice by simply quoting the remarks to me of a well informed English Mechanical Engineer on examining them; said he: "I thought I knew something about machine tools, but when I got among Seller's tools I was perfectly content to stand still and let the party in charge explain them, you know." What they accomplished of reputation, bearing off the premium at Paris and Vienna, they here show with the progress of the intervening period, and give a small foretaste of what they will do at the Centennial hereafter, as the leading constructors of the world in their specialty. Numerous pieces of intricate machinery in motion charm the visitors, first by their mystery, next by their simplicity when explained, and last by the fact that they are doing *real* work. Among these are the cracker machines, producing in quanity what the English more appropriately term biscuits, and the envelope machine, which does everything but get the government contract for the work, and would do that if it could vote and lobby, attachments for which purpose are not unfortunately patentable. In hydraulic machinery the arrangement is especially good, and such a congregation of spouting pumps would have drained the deluge and left the Ark docked on Ararat in a few hours. There are some fifty large steam pumps of every class at work, and hosts of hand pumps of smaller size, until one would think the chief end of man was to pump, and naturally it is—the money from his neighbor's pockets to his own. The *Metal Worker* should be represented here, for a finer display of bronze goods has never been shown. Miller & Krips, brass founders, show real bronzes from American copper, which for sharpness of outline are model specimens of fine casting. Unfinished brasses, babbit and anti-friction metals, intricate designs in alloys and *galvano-plastic* are innumerable. As to stoves and hardware, the latter, both heavy and shelf, there is no end. The greatest display in the metal line is in tin plates, shown by the importing house of N. & G. Taylor Co., who exhibit tin and terne plates, special roofing plates, and the corresponding black irons to show quality of material. Under glass, this house exhibits the thinnest iron ever rolled. As an evidence of the success of their specialty in roofing plate they publish the following queer statistics. During the first three years of the manufacture of this plate 15,679 rolls were sold, aggregating 589 miles, or 3,109,920 feet, weighing 1273 tons, and covering the roofs of 2500 buildings. This firm has been among the staunchest supporters of the American steamship line, and deserves all its success. But the Institute Exhibition has run away with my "best spelling" pen, and I must give a little room to local gossip. Indications show that there is a strong probability of a tariff fight next season, and the manufacturers are stripping for the struggle. The first shot on the skirmish line is heard from Mr. Josiah Hunt, in an able letter addressed to the workingmen of Pennsylvania; the usual arguments are here very forcibly put, and carry with them the additional force that this winter a defeat means starvation to the laborer. The peculiar supineness as to Reciprocity, as proposed in the Canadian Treaty, has been broken at last by the request of numerous manufacturers to the Hon. Wm. D. Kelley to deliver an address on the subject on the 28th inst., at the Academy of Music, which he will do. On Judge Kelley and Senator Scott hang the fate of the battle next winter, and when they are needed the manufacturers suddenly evince great appreciation for them; as soon forgetting them when the enemy is routed. Both are comparatively poor men, and both have put hundreds of millions of dollars into the pockets of American manufacturers. The least that could be done as a recognition of their services would be a very liberal pension on their retirement from office. The Board of Trade helped to blow the firebrand of discord at the last meeting by recommending a revision of the Tariff. The idea is simply the outcrop of a pet scheme of a leading manufacturer, and will produce evil results, for once revision begins reduction soon follows. The greatest safeguard against reduction at the next session is, however, that the anti tariff men are so hopelessly muddled on the currency and specie question that it will take them until July next to define their position, which is just what is wanted by the people.

Patent Self-Attaching Articles.

The following illustrations represent the patent self-attaching knobs and closet pins, manufactured by the Thurston Knob Screw Co., of Boston. The screw, as will be seen in the illustration, has gimlet points at both ends, and is slotted at one end to admit of a key, which holds it fast. They are made of black walnut, well finished, and are very easily attached. The



screws are well pointed, and will pass into plastered walls easier than a gimlet. The list and discounts for these goods will be found in Trade Report on our 17th page.

Engineering Two Thousand Years Ago.

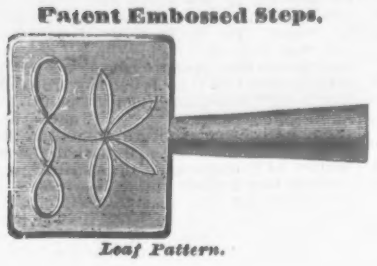
Perhaps some of the most remarkable remains of ancient engineering are those which were discovered by excavations made some ten or twelve years since, a short distance from Rome, and near the ruins of the ancient city of Alatri. This city was surrounded by massive walls, and located on a mountain or elevated point, and ill provided with water. About 150 years before Christ, as we learn from a Roman inscription, an immense aqueduct was built to bring water from a neighboring mountain better supplied with that element. We are furthermore told that this aqueduct was 340 feet high, supported upon arches and provided with strong pipes. The topography of the country, moreover, assures us that the water supply could not have been conducted into the city, even over such high supports, except by pipes—an inverted syphon—the lowest point of which must have been some 340 feet below the point of delivery, or under a pressure of at least ten atmospheres.

The excavations already alluded to show that the aqueduct must have been of large size, as the piers of the arches are not less than 5 feet 9 inches in breadth, while the total length of the syphon must have been between four and five miles. The question naturally arises—How, and of what material, was this syphon built? As iron pipes of large dimensions, if of any dimensions at all, were not known at that era, we can look only to masonry or woodwork for the material of such construction. Possibly a clue has been found to the mode of their construction by a subsequent discovery, near the same locality, of a field, supposed to have been the site of an ancient parade ground near this once walled city of Alatri. A complete system of underground drainage has been revealed at a depth of about 7 feet below the surface of the field, effected by a well constructed system of pipes made of fireclay, each about 18 inches in diameter. It is possible that such a pipe, of larger dimensions, and strengthened on its exterior by a strong and massive bulwark of masonry, may have been the means of conveying the water into the city. But however that end might have been attained, the work was certainly a most wonderful feat of engineering, considering the condition of the mechanic arts of that early day. The excavations and discoveries thus brought to light, and so fully confirming the truth of the ancient inscription, were conducted by order of the present Pope, and under the immediate supervision of the well known Italian scientific, Padre Secchi.

H. D. SMITH & CO., PLANTSVILLE, CONN.

Established 1850.

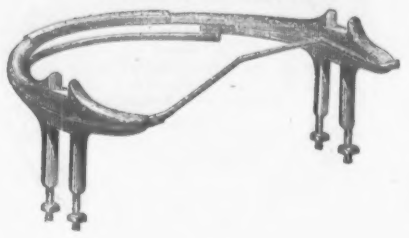
Patent Embossed Steps.



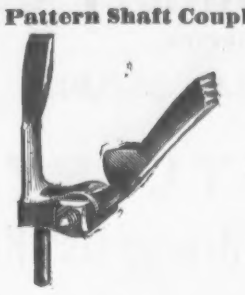
Leaf Pattern.

King Bolt Yokes.

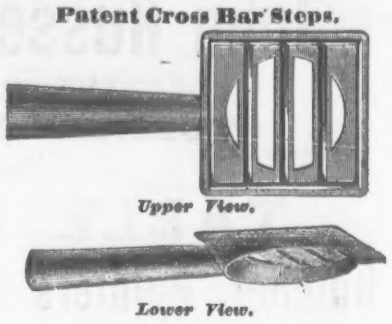
No. 6 Fifth Wheels.



1871 Pattern Shaft Couplings.

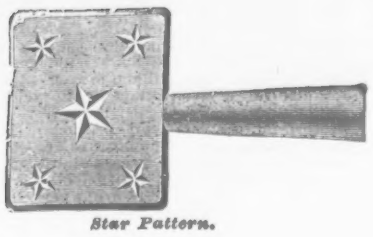


Patent Cross Bar Steps.



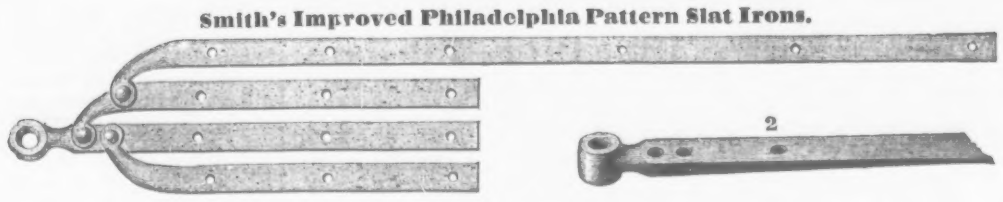
Upper View.

Lower View.

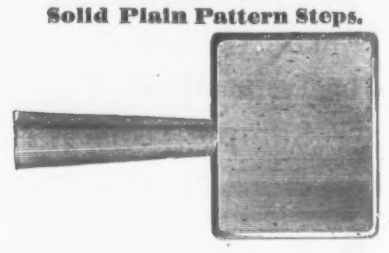


Star Pattern.

Smith's Improved Philadelphia Pattern Slat Irons.



Solid Plain Pattern Steps.



MANUFACTURERS OF A LARGE VARIETY OF FIRST-CLASS

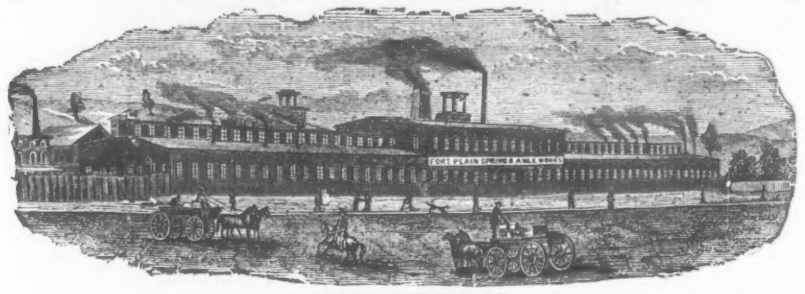
FORGED CARRIAGE IRONS.

Send for Price List.

FORT PLAIN SPRING & AXLE WORKS,

CLARK, SMITH & CO.,

Green Jacket Axles. FORT PLAIN, N. Y. Fine Carriage Springs.



MANUFACTURERS OF

English and Swedes Steel Springs, and Iron and Steel Axles.

Execute orders promptly for

Black, Bright, Tempered and Oil Tempered Springs,

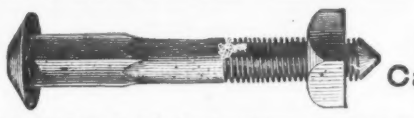
any Pattern or Style. Also for **AXLES of any description, from a COMMON LOOSE COLLAR to the FINEST OF STEEL.**

Our facilities for manufacturing are very extensive, and with our recent additions of new and improved hinery, we defy competition.

Send for Price List and Descriptive Circular.

CARRIAGE BOLTS.

Buy the Best.



Clark's Patent Carriage Bolt.

Best Bolt manufactured for all kinds of agricultural machinery. Will not split the wood, and can not urn in its place.

MANUFACTURED BY

CLARK BROS. & CO., Milldale, Conn.

Also Manufacturers of

Plow and Machine Bolts, Coach Screws, Nuts, Washers, Tire Blanks, Rivets, &c

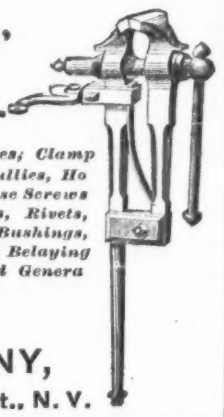
Send for Illustrated Price List

WILSON MANUFACTURING COMPANY.,

NEW LONDON, CONN.

MANUFACTURERS OF

SOLID BOX VISES.



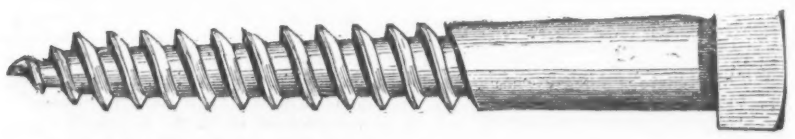
With or without Convex and Concave Washers.

Jackscrews, Braces, Coffee Mills, Turning Lathes; Clamp Heads and Screws; Parallel Bench Vises, Sash Pullies, Ho House Pullies, Composition Cocks, Bench Screws, Vise Screws Gridirons, Drill Stocks and Bows, Box Chisels, Rivets, Sheaves, Block Pins, Composition Roller and Iron Bushings, Riggers' Screws, Caulkers' Tools, Pump Chambers, Belaying Pins, Marlin Spikes, Malleable Iron Castings, and Genera Hardware.

GALVANIZING DONE TC ORDER.

WILSON MFG. COMPANY,

Warehouse, 37 Chambers St., N. V.



WM. H. HASKELL & CO.,

Pawtucket, R. I.

Manufacturers of

COACH SCREWS (with Gimlet Point),

all kinds of

Machine and Plow Bolts,

FORGED SET SCREWS AND TAP BOLTS.

Warerooms. No 11 Warren St., New York H. B. NEWHALL, Agent.

CONCORD SPRING WORKS,

J. PALMER & CO.,

Manufacturers of

CARRIAGE SPRINGS,

Superior Temper, Warranted.

CONCORD, N. H.

Philadelphia Star Bolt Works.

"STAR"

Carriage and Tire Bolts,

NORWAY IRON,

Button Head.

QUALITY GUARANTEED.

Trade Mark.

IXL

Carriage and Tire Bolts,

CHARCOAL IRON,

Beveled Head.

QUALITY UNSURPASSED.

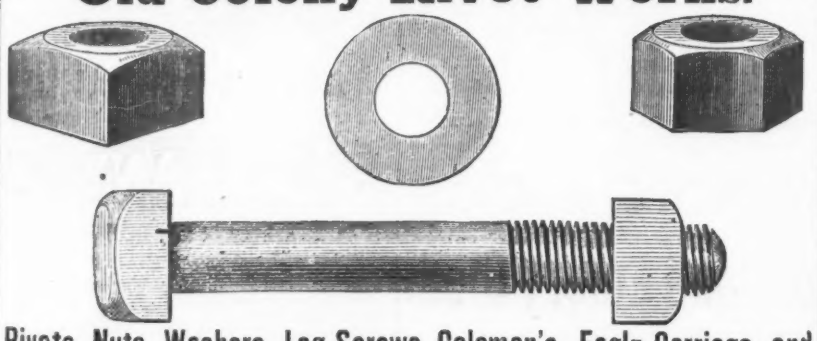
The Celebrated "STAR" Brand of Axle Clips.

Blank Bolts, Wood Screws, Square Head Bolts, Plow Bolts, &c., &c.

Our IXL Bolt is made from approved brands of Iron, and is equal in every point of appearance to the regular Philadelphia Carriage Bolts, being made on the same machinery, and the quality is not surpassed by any bolt of like grade in the market.

TOWNSEND WILSON & HUBBARD 2301 Cherry St. Philadelohia Pa.

Old Colony Rivet Works.



Rivets, Nuts, Washers, Lag Screws, Coleman's Eagle Carriage and Tire Bolts, Axle Clips, Felloe Plates, Shaft Couplings, Stove and Machine Bolts, Dril ing Machines, Tire Benders,

&c. Full stock constantly on hand. Warehouse, 116 Chambers St., N. Y.

ESTABLISHED 1837.

H. M. WENTWORTH & CO.

MANUFACTURERS OF

Carriage Springs & Axles

DAM, No 3 WATER ST, Gardiner, Me.

ALL GOODS WARRANTED.

ARMS, BELL & CO.,

Manufacturers of

Carriage, Tire & Square Head Bolts.

Cold Pressed Nuts and Washers, Etc.,

YOUNGSTOWN, OHIO.

Price lists sent on application.

THE READING BOLT & NUT WORKS.

J. H. STERNBERGH,

READING PA.,

Manufacturer of all kinds

Machine Bolts, Bolt Ends,

RODS for Bridges & Buildings,

HOT PRESSED NUTS,

Washers, Coach Screws, Refined Iron, &c.

Manufacturing my own stock of iron, I am able to control quality, and fill orders promptly, with a very superior article, at the lowest possible price. Send for Price List.

H. B. NEWHALL, Agent for New England States, New Jersey and Eastern New York, **11 Warren Street, New York.**

J. AUSTIN & CO.,

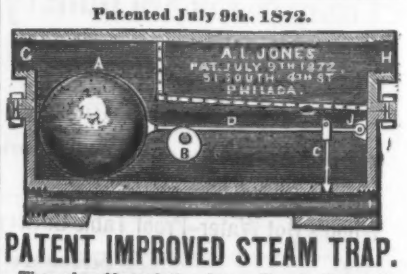
168 Fulton Street, N. Y.

SOLE AGENTS FOR

SCRIPTURE'S OILERS.

FRANKLIN S. MILES, Manufacturer of Brass, Iron, Steel and German Silver SCREWS. 205 Quarry Street, Philadelphia.

Patented July 9th, 1872.

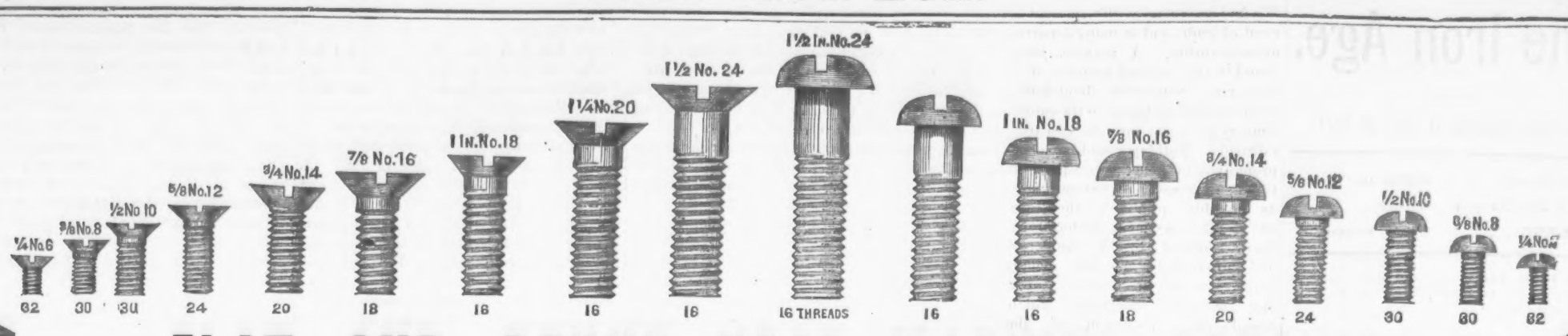


PATENT IMPROVED STEAM TRAP.

The only self-regulating Steam Trap in the world. For full description send for circular to

A. L. JONES,

Steam Heating Establishment, 51 S. 4th Street Phila.



FLAT AND ROUND HEAD MACHINE SCREWS,

OF SIZES, Nos. - - 4, 6, 8, 10, 12, 14, 16, 18, 20, 24, SCREW GAUGE.
AND LENGTHS - - 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1 1/4, 1 1/2 INCH.

PLUG AND BOTTOMING TAPS.

Manufactured, **KEPT IN STOCK**, and sold by

AMERICAN SCREW COMPANY, - - PROVIDENCE, R. I.

Fillister Head and Pattern Machine Screws Made to Order Promptly.

---

11 Warren Street, New York.

H. B. NEWHALL,

Agent for the Following Companies:

PROVIDENCE TOOL CO., - - Providence, R. I.
Heavy Hardware, Ship Chandlery and Clothes Wringers.

WM. H. HASKELL & CO., - - Pawtucket, R. I.
Machine Bolts and Coach Screws.

LEWIS, OLIVER & PHILLIPS, Pittsburgh, Pa.
Heavy Hardware and Railroad Supplies.

ROCHESTER MACHINE SCREW CO., Rochester, N. Y.
Milled Set and Cap Screws.

PENFIELD BLOCK WORKS, - Lockport, N. Y.
Rope and Iron Strapped Tackle Blocks.

ADAMANTINE FILE WORKS, - Providence, R. I.
Hand Made Files. Trade Mark "Philo, Sheffield."

Braces, Curry Combs, Ash Shovels, Ferrules, Chisel Rings, Garden Trowels, Pat. Ox Bow Pins, &c.
Manufactured by
G. W. & H. S. BARTHOLOMEW, Bristol, Conn.

THE FLORENCE SKATES.

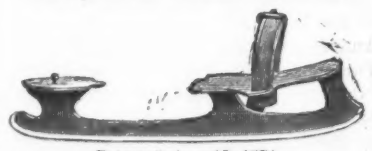
FLORENCE CLUB SKATE.

Patented March 31 *and Aug.* 18, 1874.

This Latest Invention is adjustable, automatic and self-fastening. **No heel plates** or sockets to clean out; **no wrenches, no keys, no straps. Instantly** and **securely** it fastens itself to the boot. Made of the best steel, in the most thorough manner.

Price, **$3.50** *per pair,* **25** *per cent. discount.*

FLORENCE STEEL SKATE.



Patented Aug. 18, 1874.

This Skate for the Million is unique, simple, light, strong and durable. Quickly and firmly fastened to the foot by the usual heel button and single toe trap. An **elegant, warranted steel skate,** at the price of a common iron one.

Price, **$1.00** *per pair,* **25** *per cent. discount.*

Made by **THE FLORENCE SEWING MACHINE CO., Florence, Mass.**
Manufacturers of the **Best & Most Simple First-Class Sewing Machine in the World.**

To all Manufacturers who use Emery for polishing Iron and Steel Goods, and for the manufacture of Polishing and Cutting Wheels, and other purposes.

CORUNDUM

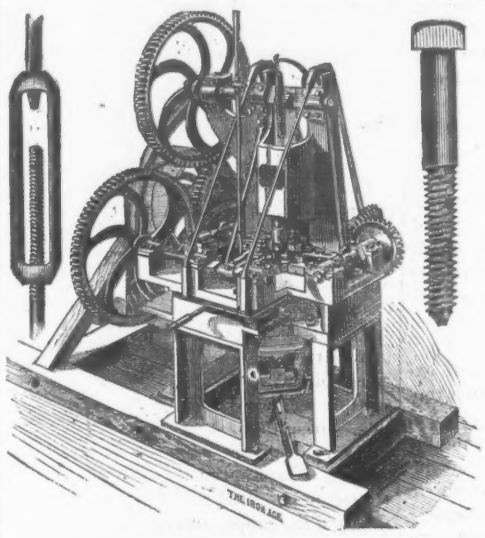
FROM THE
UNIONVILLE MINE, Chester County, Pa.,
Manufactured by the
PENNSYLVANIA CORUNDUM COMPANY.

Are now prepared to furnish a ***very superior quality of Genuine Corundum,*** from the ***Unionville Mine, Chester County, Pa.,*** which is the largest known deposit of Corundum in the world. It is harder than Emery or any other known Mineral except the ***"Diamond,"*** and superior in its cutting qualities for the polishing or cutting of steel, iron or other hard substances for which Emery has been used.

JAMES C. HAND & CO.,
COMMISSION MERCHANTS,

No. 614 & 616 Market Street, **PHILADELPHIA.**

AMERICAN BOLT COMPANY,

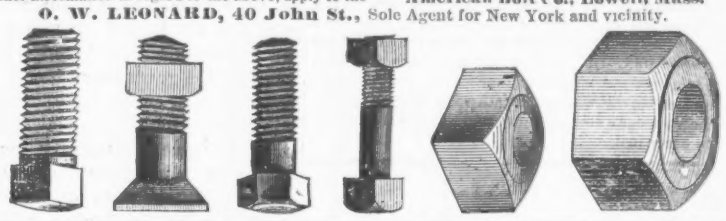


MANUFACTURE
BOLTS AND NUTS,
Coach or Lag Screws, Washers, Chain Links, Forgings, &c.
OF ALL KINDS AND SIZES, AT SHORT NOTICE.
210 Lawrence St., Lowell, Mass.

JONATHAN HOPE. ROBERT H. BUTCHER. JAMES MINTER.

With increased facilities we are now enabled to pay prompt attention to all orders for our **Patent Bolt Heading Machine,** now fully acknowledged the best ever invented. Our Machines will head Bolts from ¼ inch diameter to 1¾ diameter, and from ½ inch to 48 inches long, or longer if necessary, and almost any description of heads—Square, Hexagon, T head, &c. and properly attended, without changing, will head from 300 to 5000 per day. We are also prepared to offer for sale our **New Patent Bolt Cutter,** which will cut Bolts from ⅜ inch diameter to 1¾ inclusive. A boy will cut on an average 400 ¾ inch Bolts per day. Parties wishing first class Bolt Heading Machines or Bolt Cutters, we would respectfully invite to call at our works, where they can at all times see the Machines in operation and judge for themselves. Perfect satisfaction guaranteed in all cases. For references and any other information in regard to the above, apply to the **American Bolt Co., Lowell, Mass.**

O. W. LEONARD, 40 John St., Sole Agent for New York and vicinity.



TACKS & SHOE NAILS,

Upholstery, Gimp, Brush, Card & Pail Tacks,

Leathered, Tinned and Large Head Iron Carpet Tacks, Finishing Nails made expressly for black walnut work, Clout and Trunk Nails, black or tinned, warranted to clinch.

Hungarian, Cigar Box and Chair Nails, Boat Nails of Copper or Iron.

Zinc, Copper, Steel and Iron Shoe Nails, Slating and Roofing Nails, 3d and 2d Fine Nails, Roofing Tacks, Brads, Patent Brads, Dowel Brads for cabinet makers' use, etc., etc.

Any Size or Style of Tack or Nail made to sample. ***TINNED TACKS AND NAILS of every variety.***

MADE BY THE

AMERICAN TACK COMPANY,

FACTORY, Fairhaven, Mass. - - - SALESROOM, 117 Chambers St., N. Y.

Orders sent to either place will receive prompt attention.

EAGLE BOLT WORKS.

(ESTABLISHED 1845.)
No. 2030 Arch St., PHILADELPHIA.

THE ORIGINAL AND ONLY ESTABLISHMENT MANUFACTURING THE

Genuine Eagle Bolt.

AND USING SQUARE NORWAY IRON EXCLUSIVELY.

Carriage Bolts of every description, Tire Bolts, Square Head Bolts, Countersunk Bolts, Cone Heads, Steeple Heads, T Heads, Cheese Heads, Elliptic Heads, Step Bolts, Axle Clips, Turned Collars, California Tire Rivets and Washers constantly on hand, and orders filled promptly.

☞ **POINTED TIRE BOLTS A SPECIALTY.** ☜

For Price Lists and Discounts, Address

THE M. J. COLEMAN BOLT AND NUT COMPANY,

(Successors to M. J. COLEMAN,)
No. 2030 Arch Street, PHILADELPHIA.

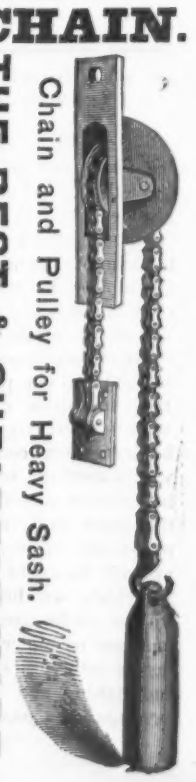
A complete assortment at **OLD COLONY RIVET WORKS, 116 Chambers Street, N. Y.**

Many & Marshall,

48 Warren St., N. Y.

SASH CHAIN.

Chain and Pulley for Heavy Sash.



THE BEST & CHEAPEST MADE.

Manufacturers of every description of

BUILDERS' HARDWARE,

Pure Bronzed Metal and Hand-Plated Knobs, Hinges, &c.,

Agents for Gautier's Black Lead Crucibles.

Agency and Depot of the **TRENTON LOCK COMPANY.**

The Iron Age.

New York; Thursday, October 29, 1874.

DAVID WILLIAMS . . . Publisher and Proprietor.
JAMES C. BAYLES . . . . Editor.
JOHN S. KING . . Business Manager.

The Iron Age is published every Thursday morning, at No. 10 Warren Street, New York, on the following terms:

SUBSCRIPTION.

Weekly Edition.....**$4 a year.**

Issued every THURSDAY Morning. Contains full Trade Reports for the week, brought up to the close of business on the previous day.

Semi-Monthly Edition.....**$2 a year.**

Issued the FIRST AND THIRD THURSDAY of every month. Contains a full Review of the Trade for the previous half month.

Monthly Edition.....**$1 a year.**

Issued the FIRST THURSDAY of every month. Contains a full Review of the Trade for the previous month.

To	Weekly.	Semi-Monthly.	Monthly.
Canada	$4 10	$2 40	$1 21
Great Britain	6 00	3 00	1 50
France	6 00	3 00	1 50
Germany	8 00	4 00	2 00
Prussia	8 00	4 00	2 00
Buenos Ayres	8 00	4 00	2 00
Peru	6 00	3 00	1 50
Belgium	8 00	4 00	2 06
Mexico	7 00	3 50	1 75
Sweden	12 00	6 00	3 00
New Zealand	8 00	4 05	2 01
Brazil	6 00	3 20	1 63

ADVERTISING.

One square (12 lines, one inch), one insertion, $2 50; one month, $7 50; three months, $15 00; six months $25 00; one year, $40 00; payable in advance.

All communications should be addressed to

DAVID WILLIAMS, Publisher,
10 Warren St., New York.

EUROPEAN AGENCY.

CHARLES CHURCHILL & Co., American Merchants, 28 Wilson Street, Finsbury, London, England, will receive subscriptions (all postage prepaid by us) at the following prices in sterling: Great Britain and France, 25/; Germany, Prussia and Belgium, 33/1; Sweden, 50/. They will also accept orders for advertisements, for which they will give prices on application.

City Subscribers will confer a favor upon the Publisher, by reporting at this office any delinquency on the part of carriers in delivering *The Iron Age*; also, the loss of any papers for which the carriers are responsible. Our carriers are instructed to deliver papers only to persons authorized to receive them, and not to throw them in hall ways or upon stairs; and it is our desire and intention to enforce this rule in every instance.

CONTENTS.

In What Directions will Capital Next Seek Investment?

The experiences of the past twelve months have been well calculated to impress upon the public mind the lessons of the panic of last year, and, in so far as they have accomplished this result, they will have aided in bringing about a prosperity healthier and more permanent than that which was so rudely checked in November last. Had the effects of the panic been as transient as we all hoped and expected they would be, and had our productive and distributive industries rallied from depression with the elasticity which even the wisest business men confidently believed they would manifest, we should have continued in the same direction to the attainment of the same ends, only to encounter worse misfortune in the future. As a people, we are apt to go to extremes in everything in which we become fairly interested. Public confidence once established in a business or undertaking, capital at once rushes into that business or into similar undertaking and before we know it we have spoiled a good thing by overdoing it. We find instances of this in every department of trade, and in many departments of manufacturing. A notable instance is found in the railroad progress of the past five years. Since 1870, about $300,000,000 of the annual additions to the capital of the country has gone into the construction of railroads. Nothing could have been more promotive of general prosperity than as rapid an extension of our railroad system as possible, provided the investment of capital in such undertakings had been regulated by the same prudence and forethought as are usually displayed in private business operations. But in the excitement which followed the completion of the Pacific Railroad and the opening of transcontinental communication, railroad building assumed the form of a vast national speculation. Instead of finishing the work of internal development as we went along, by constructing branch and connecting lines wherever they were needed, and for which a traffic could have been obtained as fast as the iron was laid, the bold spirits of the Colonel Mulberry Sellers' type, who largely assumed control of this new drift of capital, projected vast undertakings in sections which, whatever their probable future importance, had no present need of railroad facilities. Half a dozen "transcontinental" routes were proposed and three or four undertaken; and lines extending far into unsettled districts of "the great west" were more favorably regarded than those making more modest claims, but with better prospects of a paying traffic. Vast tracts of land were granted by Congress in aid of enterprises which should not have been undertaken for years to come, and State legislatures liberally contributed to the construction of lines which never had, and perhaps never will have, any claim upon the public confidence—at least, not until they are built over again by competent engineers with good materials. As the speculation became more and more hazardous, public confidence seemed to grow stronger. Promises to pay impossible interest in gold, free of government tax, etc., were freely made and as freely accepted; every enterprise with bonds on the market was approved by eminent men high in the public regard, who did not hesitate to affirm that there was "millions in it," and thousands exchanged the government bonds which represented their entire fortunes for railroad securities, which to-day have no quotable market value. Presently, public confidence in railroad investments began to weaken, but the work of construction was carried on by the bankers with funds in many instances subject to sight draft, and then came the panic. The consequent heavy defaults of the railroads on their bonds administered the *coup de grace* to the railroad mania, and it will probably be a long time before we shall again witness a progress in railroad construction so rapid as that which make 1871, 1872 and 1873 conspicuous in our statistical history. Confidence once destroyed, it cannot be easily re-established. For the next few years the addition to our railroad system will, we think, largely consist in additions to uncompleted lines, and necessary links and connections extending through sections which need additional facilities of communication with the great markets of the interior, or the ports of the Atlantic, the great lakes and the Gulf. We hope these needed additions will give us a fair annual mileage of new railroads, but we do not consider it probable that, for the next few years, the annual investments in railroads will be large, as compared with those of the four years past. The question of what will be done with the capital thus withheld from investment in railroads is, therefore, one of much interest and importance.

In the absence of any form of investment affording the elements of an excitement which would tend to draw capital toward it, the probabilities are that it will gradually find its way into a multiplicity of small investments which, in their aggregate, will do quite as much to promote the general prosperity and increase the wealth of the country as was ever expected of railroads. There are a great many promising avenues of investment—as for example the development of coal and iron mines—for which it has been extremely difficult to find capital in this country. While we have been building railroads on a speculative and generally unsound basis, the owners of valuable mineral lands have in many instances had to seek abroad the capital needed for their development. There the opportunities which we neglected have been appreciated, and a great deal of English capital has been invested in American iron and coal properties, which will be allowed to remain unproductive until the growing demand for the wealth they contain shall enable the owners to realize a handsome profit. Investments of this class are likely to attract more of native capital during the next few years than heretofore. We have a vast undeveloped natural wealth exclusive of coal and iron, which also stands a better chance of attracting capital for its development at this time than heretofore. We may also expect to see capital flow more liberally into manufacturing operations which promise a fair interest. The uncertainty which now surrounds the future of tariff legislation may tend to weaken the confidence of prudent capitalists in the profits of manufacturing, for without at least enough protection to place American manufacturers on a footing of equality in our own markets with those of foreign countries, our manufacturing industries would suffer heavily. With this assured, however, prudent investors, especially those with limited capital who wish to employ their money in enterprises to which they can give their time and personal attention, will be likely to prefer manufacturing to any other business. The loose responsibilities of corporate management have, we think, created a decided preference for private investments on the part of those who have nothing to risk which they can afford to lose, and who also desire profitable employment for their time. We believe that the next few years will bring us more than average general prosperity, and the diversion of capital in many classes of investments hitherto overshadowed by the great speculation in railroads, will deepen and broaden the foundations on which that prosperity will rest. Should these expectations be realized, what our iron industries lose by the falling off of the demand on account of railroad construction, will be more than made up by a more liberal consumption on account of renewals and repairs, and in many other ways which cannot be indicated in an article which has already far exceeded the limits we had prescribed for it.

The Statistical Position of Tin in Europe.

The uncertainties which surround the future course of tin in the European markets gives interest to an inquiry into the causes which have brought about the serious decline in the value of that metal. An examination of the tables given below will show that the rapid increase of production in Australia is without doubt the principal cause of the depreciation, and that with a further augmentation of the supply from this source, there is but little chance for a recovery in prices, unless it be that an increased consumption in Europe and the United States shall restore the equilibrium between the supply and demand. The following table shows, for a series of years,

THE VISIBLE SUPPLY OF TIN IN EUROPE:

	1869. Dec. 31. Tons.	1870. Dec. 31. Tons.	1871. Dec. 31. Tons.	1872. Dec. 31. Tons.	1873. Dec. 31. Tons.
Lon. stock	1,900	912	1,300	956	2,038
Dutch stock	4,082	4,702	2,106	3,474	5,063
Afloat from countries other than Australia	2,764	2,025	2,064	2,865	1,239
Afloat from Australia	....	....	...	....	1,061
	8,746	7,639	5,470	7,295	9,401
Straits tin	£110	£133	£145	£138	£121

	1872. Oct. 1. Tons.	1873. Oct. 1. Tons.	1874. Oct. 1. Tons.
London stock	1,829	1,877	2,658
Dutch stock	3,237	6,431	5,936
Afloat from countries other than Australia	2,122	579	1,281
Afloat from Australia	315	352	1,000
	7,503	9,239	10,875
Straits tin	£149	£124	£ 92

From this it appears that the stock in London was heavier at the beginning of October than it has ever been before, while the available supply in Holland is 500 tons less than it was a year ago. As to quantities afloat, it appears that from countries other than Australia they are considerably less than the average. The Australian production accounts for the condition of affairs now prevailing, and while the supply continues in excess of the requirements of the markets no permanent improvement in prices can be looked for.

During the nine months of the current year ended with September, there were imported into London 5067 tons of Australian tin or its equivalent in ore, against 2472 tons last year, and 151 tons in 1872. To the total for the current year up to October 1st, must be added the amount sent from Australia to the Continent, which amounted to 4000 tons for the six months ended with June: and latest advices from Australia report no abatement in either the production or shipments of tin. During the month of September alone London received 603 tons from that source, against 113 for the same month of 1873, and 13 for the same month of 1872.

With these facts before us it is, we think, safe to conclude that the course of prices in tin will be in consumers' favor for some time to come. One of the best statisticians of the London market, in a private letter under date of Oct. 7th, says: "This "metal will, I think, go lower here as long "as we can see Australia sending liberal "supplies, and as long as we have "favorable prospects of an increase in "Straits production, both of which are "now apparent. There is this, however, "to be borne in mind—the deliveries are "large, and a check to production in any "quarter resulting from low prices would "be at once felt." To this we would add that the continued depression in the tin plate market has also a great deal to do with the present low range of tin. A change in this respect may be brought about before long in Europe, if not in this country, for the whole world is now dependent upon Great Britain for supplies of tin plates, and production in England and Wales has been seriously checked by the prolonged strikes of the past summer.

Of the general metal markets of Europe we may say that, should nothing of an unexpected nature occur to prevent it, the recovery already begun will probably develop into an unusual activity early in 1875, and tin may show the general improvement in proportion to the effect of an increased consumption in overcoming the depressing influence of an overstocking of the market. Should solid capitalists on the other side consider the metal unduly depressed and find in it a good opportunity for temporary investment, it would soon recover a healthy tone, though the competition between Australia and Straits will place a check upon speculative advances in prices for a considerable time to come, if not permanently.

The Foreign Commerce of the Port of New York.

The following tables show the imports and exports of merchandise and specie at this port for the nine months ended with September, as compared with those for the same period of the two preceding years:

IMPORTS.

	1872.	1873.	1874.
Ent. for con.	$159,292,057	$143,353,313	$138,116,499
Do. for warch'g	147,989,463	110,371,264	89,983,542
Free goods	37,998,958	67,990,217	83,056,936
Specie & bullion	5,002,483	3,901,492	5,037,889

Among the imports of which the totals are given above are found the following items:

	1872.	1873.	1874.
Copper and ore	$1,026,048	$1,317,085	$126,391
Cutlery	2,054,179	1,931,227	1,360,960
Hardware	444,525	347,104	294,057
Iron, bar	3,738,846	1,345,026	612,279
Iron, pig	2,336,953	2 089,345	779,304
Iron, R. R. bars	8,871,707	7,384,518	4,877,229
Iron, sheet	259,854	399,037	186,669
Lead	1,349,351	1,346,733	1,056,319
Spelter	413,731	287,544	99,010
Steel	2,097,055	2,069,530	985,892
Tin, slabs	1,575,581	1,235,822	1,990,935
Tin, plates	7,251,094	7,8 9,728	6,405,387
Zinc	436,475	224,652	197,498

These comparison are interesting and require no comment, as the conditions affecting the state of trade which have produced the fluctuations shown are well understood by those who have followed our weekly market reports and editorial discussions. Our exports for the nine months are shown as follows:

EXPORTS.

	1872.	1873.	1874.
Dom. produce	$158,102,659	$206,756,640	$209,263,000
For. free goods	1,147,343	1,618,1 7	1,622,654
" dutiable	7,418,010	6,877,128	5,275,906
Specie & bul'n.	58,382,370	41,559,101	42,661,234
Total exports	$225,050,382	$256,811,026	$258,822,794
" exclusive of specie	166,668,012	215,251,935	216,161,560

From this it appears that the expectations of a large increase in our exports, which were entertained twelve months ago, have not been realized, as the increase in 1874 is less than one million dollars over the total for the corresponding period of 1873. New York now receives about 66 per cent of the total imports into the United States and ships about 46 per cent. of the total exports, exclusive of specie. The statistics of our foreign trade movements, therefore, give a very fair indication of the foreign commerce of the whole country.

American Exhibits at the Centennial.

Whether the Centennial is to be a success or not, is a question already answered—so far as its features as an exposition of American arts and industries are concerned. The applications from intending American exhibitors already call for appropriations of space far in excess of that set aside by the commissioners for American exhibits in the main exhibition building. The entire space in that structure for purposes of exhibition, after providing for aisles and passage ways, is about three hundred and fifty thousand square feet. Of this total, one hundred and two thousand nine hundred were deemed sufficient for American exhibits, but applications are already on file which call for very nearly one hundred and fifty thousand square feet. We have these facts from the office of the commissioners in Philadelphia. Of course, all this space will not be granted. Many of the applications are for space far in excess of the actual requirements of the intending exhibitors, who will have to content themselves with a less liberal display. It is not the intention of the commissioners to make the exhibition a great advertising bazar for any and everybody who may want to enter goods for exhibition. Whatever is shown must possess interest or merit, and exhibitors cannot be permitted, as in some industrial exhibitions we have visited, to transfer half their stock in trade to the space allotted them. It is not probable, however, that the commissioners, even with the most careful revision of applications, will be able to accommodate all the goods which will seek admission, unless they make important additions to the buildings now in course of erection; and we would again urge upon intending exhibitors the importance of making early applications for space. Those who postpone action under the idea that there is yet ample time, will have only themselves to blame if they are finally compelled to content themselves with inferior accommodations—possibly in buildings other than that which will contain the most attractive features of the exhibition.

Mr. Hewitt as a "Revenue Reformer."

We print in another column an extract from a speech made by Mr. Abraham S. Hewitt in this city on Thursday evening, which is interesting to our readers as defining very clearly his views on the subject of the tariff. Mr. Hewitt's position at this time is, to some extent, one of peculiar embarrassment. As a candidate for Congress on the nomination of a party which has generally made the mistake of committing itself to free trade declarations, and as a citizen of New York, where the importing interest exercises a powerful and permanent influence in shaping public opinion, he is naturally expected by the electors of his district to declare himself a free trader. But Mr. Hewitt is far too honest for any such demagoguery. He is not a free trader, and probably never will be one—at least, so long as it costs more to produce an article in this country than in Europe with the same labor. We believe that what Mr. Hewitt has said expresses his convictions, and while he will not find many iron masters to agree with him, it is probable there are few, if any, who would not feel content to have him represent their interests in Congress. For our own part, we would trust Mr. Hewitt's practice in law making far more completely than we can accept his theory as to revenue legislation. What a man would do under circumstances of his own making, is one thing—what he would do under circumstances such as he would be apt to find himself placed in as a Member of Congress during the next two years, is something very different.

One effect of the present depression of business, and the suspension of work upon our great public undertakings, is seen in the falling off in the number of immigrants arriving at this port. Up to yesterday, only 8281 immigrants had been registered since the beginning of the month, against 15,700 registered during October of last year. The arrivals since January 1st have been only 125,034; a decrease of about 85 per cent. as compared with those for the same period of last year. It is also a noteworthy fact that large numbers of those who are classified on the books of the Immigration Commissioners as unskilled laborers, have made application for return passages, but it is stated that they are mostly of the least valuable kind, and, as the rule, not able to take care of themselves. The influences which increase or retard immigration are of a kind which can only be determined by the effects they produce. What those who have come to America write to those at home, determines the action of a great majority of those who may intend emigrating when a favorable opportunity offers. Liberal wages are always the greatest attraction, and to this, more than to anything else, are we indebted for the vast and valuable additions to our population which have been secured from abroad, until, as we near the centennial anniversary of our political independence, we find ourselves a nation born of strength which other nations have lost. Fortunately for all concerned, there is as little danger of over-crowding the United States as there is of depopulating the countries of Europe whence come our accessions of population. They are benefited by losing their surplus; we are doubly benefited by the increase of population thus gained. A falling off in immigration is always to be regretted, for while its effects may not be felt at once, it means a proportionate limitation of future productive capacity.

A meeting of dealers in iron was called for Tuesday afternoon at the rooms of the Chamber of Commerce, "to consider what "simplification in classification of mer-"chandise, and what alterations in mode "of collection of revenue, shall be asked "of the government at the next session of "Congress." Whether those to whom invitations were addressed are satisfied with present classifications and have no favors to ask of the government, we are not informed, but for some reason no one came to the meeting. A second call is to be issued for a meeting at some future day not yet agreed upon, but of which due notice is promised.

A Remarkable Furnace Record.

The following letter, received just in time for insertion in this issue, will be read with interest in connection with an item published on one of the earlier pages:

PHILADELPHIA, Oct. 23d, 1874.

To The Editor of The Iron Age.—While so much is being said of the remarkable performance of the Lucy Furnace, whose run of 642 tons and a fraction for the week ended October 17th, has been pronounced by some of your contemporaries "the best week's work of any furnace in the world," your readers may be interested in hearing that these figures have been considerably exceeded abroad. The Societe Anonyme des hauts Fourneaux, Esch Sur l'Alzette, Luxemburgh, have constantly made during the past 12 months between 700 and 770 tons per week in one stack, 65 feet high by 24 feet bosh, using without fluxes the uncalcined, small, dusty "minette," or calcareous superficial ore, peculiar to the district, yielding only about 32 per cent. metallic iron. The coke is made from the coal of the Charleroi Basin, and contains from 8 to 12 per cent. of ash. The blast is two and a half pounds conveyed to the furnace through four 8 in. nozzles. The temperature of the blast is 1400° Fahr. at the tuyeres, and is gained by the use of hot blast stoves on the Whitwell system. The amount of coke used is 20¼ cwt. to the ton of iron. In every case where I have used the word ton I mean 2240 lbs. The bosh of this furnace is certainly wider than that of the Lucy, but they don't have Lake Superior ores.

Respectfully, MODERATOR.

The Iron Resources of the United States.

PROF. J. S. NEWBERY.*

Among the varied mineral resources of the United States the ores of iron form a conspicuous feature. All the varieties of ore known are found here, most of them in abundance, and so located with reference to the fuel necessary for their manufacture as to make cheap and excellent iron attainable in all important centers of population. In order to show the conditions under which the manufacture of iron is now and will hereafter be carried on in our country, it will be necessary to give some notes on the varieties of ore which we possess, and on their distribution and adaptation to different kinds of manufacture.

MAGNETIC IRON ORE.

The richest of all the ores of iron is the magnetic oxide, which, when pure, contains iron 72·4, oxygen 27·6. It is usually crystalline in character, and may be recognized by its black color and its effects upon the magnet. When free from injurious ingredients, it produces the best of iron, and is already the basis of a large iron industry in this country. It is, however, liable to be contaminated by phosphorus, sulphur and titanium. The phosphorus is usually in the form of apatite (phosphate of lime), and this, when present in considerable quantities, renders iron made from the ore "cold short," that is hard and brittle when cold, and forbids its use for the manufacture of steel.

Sulphur exists in magnetite in the form of sulphide (iron pyrites). The effect of this is to render the iron "red short," or tender and crumbling when heated to red or white heat. This also greatly impairs its value for the manufacture of steel, though by proper treatment it may be almost entirely removed. In this respect sulphur differs from phosphorus, as the latter clings to the iron with a tenacity that it is almost impossible to overcome. Titanium renders iron ore refractory in the furnace, and causes the metal to be excessively hard if combined with it in any considerable quantity.

The magnetic ores of the United States are found only in the metamorphic and crystalline rocks, the great repositories of it existing in Canada, the Adirondacks, and throughout the entire length of the Alleghany belt. They are also found in the Black Hills, and in various parts of the Rocky Mountains and the Sierra Nevada. The magnetites of Canada occur in the Laurentian rocks, where it is evident that they once formed sedimentary sheets which were deposited nearly horizontally, but are now greatly broken up and sometimes are seen standing nearly on edge and having the aspect of true veins. The value of the Canadian ores is generally much impaired by the sulphur and titanium which they contain. Some of these Canadian ore beds are more than 100 feet in thickness, and of considerable lateral extent; such as the "Big Bed" of Marmora, north of Lake Ontario, and that of the Bay of St. Paul's, described by Sir William Logan.

From several Canadian localities magnetic ore is carried through the Welland Canal to the cities located on the shores of the great lakes, and especially to those of Ohio and Pennsylvania. Transportation to these localities, by vessels returning from the East light, is cheap, and it is probable that hereafter a very important contribution to the iron industry of the West will be made from this source. The principal Canadian ores now brought to the United States are the ore of Marmora, shipped from Coburg, Lake Ontario, and that of North Crosby, on the Rideau Canal. The use of the latter is restricted on account of the quantity of titanium it contains.

The magnetic ores of the Adirondacks are best shown about Port Henry, on Lake Champlain, in a region which is sometimes called the Champlain Iron District. Here the number of important deposits is large; the ore is generally granular in texture, and is often contaminated by phosphate of lime. A portion of it is, however, quite pure, and the quantity used in and shipped from this region is now very great. Some of it is sent even to the Western States, where it is used largely as "fixing" in the puddling furnaces, and also more sparingly in the blast furnaces in combination with other ores, under the impression that it corrects a tendency to "red shortness" and improves the quality of the iron. Its chief place of manufacture is in the interval between Lake Champlain and New York.

In Orange county, New York, and in Northern New Jersey, the magnetic ores of the Alleghany belt exhibit unusual development. Here they are found interstratified with gneiss and mica schist, having the bearing of the mountain ranges—nearly northeast and southwest—with a dip of 60° to 70° to the southeast. The number of distinct beds of iron ore in this region is great, and they furnish the chief supply of ore to more than 100 furnaces.

In Sussex county, N. J., a remarkable bed of magnetite is found, which contains large quantities of manganese and zinc, and this forms the mineral known as franklinite. This is the basis of an extensive manufacture of zinc, and when the zinc has been removed from the ore, the residual iron is found to be unusually free from injurious ingredients. It also contains from 10 to 20 per cent. of manganese, and is thus well adapted to the manufacture of spiegeleisen. It is in fact largely used for this purpose, and now supplies to our Bessemer steel works considerable quantities of this indispensable article scarcely inferior in quality to that imported from abroad. We are informed by Mr. A. S. Hewitt that on the western side of this ore belt the magnetite is much more free from phosphorus than on the eastern, and that here a large amount of ore has been found sufficiently free from phosphorus to be well adapted to the manufacture of steel.

In Pennsylvania the belt of magnetic ore is less rich than either north or south, but valuable deposits occur at frequent intervals.

At Cornwall is a peculiar deposit of magnetic ore, which is quite exceptional in character, and of more economic importance than almost any other iron mine in the country. Here the iron ore accompanies the trap rock, which has apparently burst out along the line of junction between the Triassic sandstone and the metamorphic rocks. The ore is soft, and sometimes pulverulent in character, and is often highly impregnated with sulphur and copper; still, nearly 200,000 tons per annum are produced from this mine.

In York county, Pa., another peculiar magnetite is found, which is known as the Codorus ore. This is a mica-schist containing from 30 to 40 per cent. of magnetic oxide of iron, of great purity, and it has become somewhat famous by its use in a peculiar process for the manufacture of what is called silicon steel, which consists simply in the mingling of the pulverized ore with cast iron which contains 3 to 4 per cent. of carbon, and thus by oxidation reducing the percentage of carbon until it reaches the standard of a low steel.

In Virginia, North Carolina and Georgia, magnetic ores exist in great abundance, though up to the present time they have been but sparingly manufactured. One of these beds in Western North Carolina, called the Cranberry Iron Mine, is said to form a remarkably extensive and rich deposit. It is nearly free from sulphur and phosphorus, and is evidently capable of supplying a very large amount of iron of the best quality. So great is the development of the magnetic ores in this region, that it seems almost certain to become one of the most important centers of iron industry.

ANALYSES OF MAGNETIC IRON ORES.

	Moriah, N. Y.	Peekskill, N. Y.	Pt. Oram, N. J.	Franklinite, N. J.	Codorus, Penn.	Cranberry, N. C.	Stirling, N. Y.
Protoxide of iron… } Peroxide of iron… }	88·827	23·395 / 57·656	73·20	… / 65·05	53·92	91·89	86·091
Oxide of Manganese..	trace.	0·011	0·50	14·77	0·10	0·32	0·110
" Cobalt.......	…	....	....	....	....	....	0·015
" Zinc.........	....	…	....	23 30	....	....	....
Alumina..............	1·388	0·014	4·40	....	7·04	1·08	3·228
Lime..................	2·111	0·618	1·56	....	0·88	1·06	3·416
Magnesia..............	0·198	....	1·59	....	0·76	0·23	0·940
Sulphur...............	0·002	1·502	0·11	....	0·16	0·25	0·206
Phosphorus............	....	0·052	....	....	…	trace.	1·650
Phosphoric acid.......	0·040	....	0·38	....	1·13	....	....
Silica................	6·443	17·600	11·63	0·30	35·65	4·03	5·432
Titanic acid..........	0·991	....	....	....	....	....	....
Water.................	....	....	6·58	....	1·30	1·15	....
	100·00	....	99·95	103·42	....	99·95	....
Metallic iron.........	64·31	58·318	53·00	45·53	37·47	66·52	62·408
Phosphorus............	0·022	0·052	0·20	....	0·07	trace.	0·723
Sulphur...............	0·302	1·502	0·11	....	0·16	0·25	0·206

THE HEMATITE ORES.

Hematite, or specular iron, like magnetite, is found only in crystalline rocks. When pure it is composed exclusively of the peroxide of iron, contains 70 per cent. of metallic iron, and hence is second in richness only to magnetite. This is the ore found in the famous mines of Elba, and has been extensively employed for the manufacture of iron in many parts of the world. The deposits of this ore which occur in the United States are second to none in quality and quantity. The most important of these are found in the iron region of Marquette, Michigan, and in that of Central Missouri. The geological age of these districts is apparently the same, viz.: Huronian. On Lake Superior it is now easy to see that the ore beds were once horizontal strata, deposited in conformity with many other stratified sediments, but they are folded and broken in such a way that their true nature was for a long while misunderstood. Like the magnetic ores of the Alleghany belt, they were once considered eruptive, but the progress of modern science has shown that all the so-called Eozoic iron ores are simply metamorphosed strata, once deposited horizontally like the sheets of iron ore now found in the unchanged Palæozoic rocks—such as the Clinton ore and the "black-band" and "clay ironstone" of the coal measures.

The deposits of iron near Marquette, Michigan, are irregularly scattered over an area of about one hundred and twenty miles long from east to west—in other words, are coextensive with the Huronian formation. The isolated nature of the deposits is dependent upon the immense surface erosion which this region has suffered. This has removed by far the greatest part of the ore that originally existed here, leaving it only where it formed masses of unusual magnitude and solidity, which have resisted the erosive action, or where, in synclinal troughs, it has been beyond the reach of the glaciers which have ground off all the more elevated portions. We give below a number of analyses of Lake Superior iron ore.

	1.	2.	3.	4.	5.	6.	7.	8.
Peroxide of iron......	93·75	88·50	86·70	79·80	72·00	90·00	89·21	91·06
Oxide of manganese..	trace.	trace.	trace.	0·10	trace.	trace.	trace.	0·23
Alumina....	0·73	1·84	1·64	2·05	0·92	1·87	2·67	0·85
Lime..................	0 61	0·89	0·57	0·45	0·33	1·20	0·67	0·92
Magnesia..............	0·23	0·75	0·24	0·53	0·34	1·60	0·19	0·77
Sulphur...............	0·03	0·01	0·02	0·03	0·02	0·03	0·35	0·03
Phosphoric acid	0·32	0·46	0·14	0·30	0·08	0·57	trace.	0·25
Silica................	3·27	6·40	9·82	12·52	25·09	4·72	6·25	5·13
Water.................	1·09	1·23	0·61	4·25	1·21	0·98	....	0·66
Total..............	100·03	100·08	99·74	100·03	99·99	99·97	99 37	99·90
Metallic iron.........	65·62	61·95	60·69	55·86	50·40	63·00	64·60	65·94
Phosphorus............	0 14	0·20	0·06	0·13	0·03	0·22	....	0·11
Sulphur	0·03	0·01	0·02	0·03	0·02	0·03	0·35	0·03
Specific gravity......	....	4·64	4·55	4·12	3·97	4·64	....	4·66

1. Jackson Mine.
2. Cleveland Mine.
3. Lake Superior Mine (Specular).
4. Lake Superior Hematite.
5. Lake Angeline (Specular Jaspery).
6. New York Mine
7. Spar Mountain (Magnetic).
8. Washing'n Mine (Magnetic)

From the above analyses it will be seen that the iron ores of Lake Superior vary considerably in richness; they also differ widely in the constituents which are associated with the iron in them. While the great mass of the Lake Superior iron is typical specular ore, there is in this district a considerable quantity of magnetic iron and a sufficient amount of hydrated sesquioxide to form an important item in the ore production. There are also here some manganiferous ores which are apparently well adapted to the manufacture of spiegeleisen. As a whole, the ores of Lake Superior are characterized by the presence of a very considerable quantity of silica, and by the relatively small amounts of sulphur and phosphorus which they contain. They are, therefore, well adapted to the manufacture of Bessemer steel, and are already largely consumed for that purpose.

The annual production of the Lake Superior iron mines for the ten years preceding 1873 has been, according to Major Brooks, as follows:

	Tons.
1863	205,055
1864	243,157
1865	187,106
1866	288,806
1867	457,642
1868	510,522
1869	629,532
1870	861,405
1871	813,379
1872	952,077

Most of this ore was shipped from Marquette, but a considerable quantity finds its outlet by the Escanaba & Ontanagon Railroad to Green Bay and Lake Michigan. Two-thirds of the ore exported from this district goes to Cleveland, Ohio, there to be distributed among the two hundred furnaces which use it in Ohio and Pennsylvania.

The iron district of Central Missouri has been cited as one of the wonders of the world, for here it has been said that there are literally mountains of iron ore. These mountains are named Pilot Knob, Iron Mountain, etc., of which Pilot Knob has an altitude of over six hundred feet. These and the associated hills are not, as was formerly supposed, entirely made up of iron ore, but the quantity is so enormously large that the term "inexhaustible" frequently applied to it is scarcely an exaggeration. The ores of this region, like those of Lake Superior, are mostly specular, and are very rich and pure. Those of Iron Mountain are richest, as will be seen from the table of analysis given below. Here the ore occurs disseminated in an irregular way through masses of porphyry, which were, in all probability, once sedimentary rocks, but which have been so highly heated as to resemble the products of complete fusion. This process has resulted in the destruction of all lines of bedding, and the breaking up of the regularity and continuity of the ore beds. In process of time the porphyry, which includes the ore at Iron Mountain, has been deeply and extensively decomposed by atmospheric action, and reduced at the surface to a red clay, so that most of the iron hitherto taken from this mountain has been found as detached masses in this bed of clay. It is well known, however, that underneath this immense quantities of iron are lying imbedded in the unchanged porphyry. At Pilot Knob the ore is distinctly stratified, in some places being quite slaty. It contains a larger amount of silica and alumina than that of Iron Mountain, and shows clearly its sedimentary nature by its structure. Though mined with considerable difficulty, from its intense hardness and toughness, and yielding a smaller percentage of metallic iron than that of Iron Mountain, Pilot Knob ore is still highly esteemed, and, like that of Iron Mountain, is shipped to furnaces even as far east as Pittsburgh.

Taking the ore of the different mines of Central Missouri together, its average richness is about the same with that of Lake Superior. It is also equally free from injurious ingredients, and is capable of being successfully employed for the manufacture of all varieties of iron and steel. In these two iron districts the inhabitants of the Valley of the Mississippi have a supply of remarkably rich and pure ores, which is not likely to be exhausted for some hundreds of years, and which, from the small amount of phosphorus which they contain, will be the chief dependence of the American people for the manufacture of steel, unless improvements in the processes of manufacture shall make it possible to utilize the ores which are now regarded too impure for the purpose. The geological age of the Lake Superior and Missouri iron ores is apparently the same, and they are also probably contained in the same formation with the famous Swedish ores, which they so clearly imitate in appearance and composition.

ANALYSES OF MISSOURI SPECULAR IRON ORES.

	Iron Mountain.		Pilot Knob.		Shepherd Mountain.
Protoxide of iron.	. . .	....	0·15	1·67	1·80
Peroxide of iron..	93·57	95·42	84·33	96·37	94·84
Proto–sesquioxide of iron..........	0·76	0·88	....	....	....
Alumina...........	0·08	0·06	0·75	0·53	....
Lime..............	0·46	0·32	0·21	1·76	....
Magnesia..........	....	. ..	0·14	3·13	...
Sulphur...........	trace	trace.	trace.	0·078	0·00
Phosphoric acid..	0·035	0·036	0·035	0·069	0·025
Silica............	4·75	3·02	13·27	5·18	4·05
Manganese.........	0·12	0·07	....	....	....
Alumina, with trace of iron....	....	....	1·44	0·36	. .
Total.........	99·775	99·806	100·365	100·677	100·715
Metallic iron......	66·049	67 416	59·15	64·91	66·52
Sulphur...........	trace.	trace.	trace.	0·078	0·00
Phosphorus.. ...	0·016	0·016	0·015	0·041	0·011

RED HEMATITE ORE.

This is the name given to all ores which consist mainly of the peroxide of iron, and give a red streak or powder, but it is more properly applied to those that have a granular or concretionary structure, and have not a crystalline, metallic, or specular appearance. The ores included in this definition are of more modern date than the Eozoic, and have been plainly derived from limonite by the loss of the combined water. The famous Cumberland ore of England is a typical example of this variety. This was once a hydrated sesquioxide deposited from water in concretionary masses, and having a fibrous, radiated structure. Similar ore is found in various parts of the world, wherever indeed a limonite has been subjected to metamorphic action by which its water is removed. We have very little of this particular variety of red hematite in the United States, though some of it is found filling what were once crevices and cavities in the ore beds of Lake Superior. The chief variety of red hematite in this country is what is known as the "Clinton" or "Fossil ore."

This is a remarkable deposit of ore found in the Clinton group of the Upper Silurian, and extending along the outcrop of this formation from Northern Wisconsin through a portion of Canada, entering New York on the shore of Lake Ontario, east of the mouth of the Genesee, running thence southeasterly through Clinton, Madison county—where it received its name, and is extensively worked—thence south through Blair county and Broad Top, Pennsylvania, and so on to East Tennessee and Georgia, where it passes under the more recent formations, and disappears. This is a stratified deposit varying from one to ten or more feet in thickness, generally oolitic or granular, sometimes very compact; at others capable of being excavated by the shovel, and called "Flaxseed ore." Its composition is indicated in the analyses given below, which may be accepted as expressing its average composition, and the range of its variation. The mode of formation of this singular deposit of ore has not been well explained, but we venture to offer a suggestion in regard to its origin which will, we think, satisfy most of the conditions of the problem. On examination with the microscope, the granules which compose the Clinton ore are found to be concretions. The deposit evidently accumulated at the bottom of water in the presence of a large amount of animal life, from which its organic remains and large percentage of phosphorus have been derived. From these facts we see that it must have been formed as a hydrated sesquioxide, and gathered as bog ore is now accumulating, acting as a carrier of oxygen to the carbon of organic matter, until that was all exhausted, then taking its place. In some of the Swedish lakes deposits of granular limonite are now constantly forming, and from time to time they are gathered as crops are harvested. This ore is in the form of minute concretions, of nearly uniform size, resembling small shot, and having the structure and composition of the Clinton ore, except that in the latter the spherules are flattened by compression, and the combined water has been generally eliminated, as in other limonites of ancient date. Hence we may infer that the Clinton ore accumulated in a belt along the shore of an arm or bay of the Upper Silurian sea, where this sea received the drainage of a semicircle of highlands composed of the Alleghany belt, the Adirondacks, the Canadian Eozoic mountains, and the Lake Superior Huronian area. Every part of this belt contains great deposits of iron ore, and hence the water flowing from it could hardly fail to be highly ferruginous.

In Maine we have seen a laminated, metamorphosed red hematite which presents the appearance the Clinton ore would have if rendered by metamorphism more schistose and crystalline; and like the Clinton ore, this contains an unusual percentage of phosphoric acid. This ore is said to form a belt, which extends a hundred miles through the mountains of Maine; and we have thought it might be the Clinton ore on the east side of the old Eozoic axis metamorphosed as all the Palæozoic rocks have been in New England.

From the amount of phosphorus which the Clinton ore contains it is worthless for the manufacture of steel, but the iron made from it is well adapted to most uses, whether as bar or cast iron, and it is now the chief dependence of a great number of furnaces in New York, Pennsylvania, Tennessee and Georgia. As over wide areas this is a continuous sheet of ore, the quantity of iron which the Clinton formation is capable of furnishing is almost incalculable; and in point of commercial and industrial importance it is doubtful whether it should yield to any of the other iron ores enumerated in this paper. In East Tennessee, where the Clinton ore has conspicuous development, it is often called the "Dye-stone ore," since it is sometimes used by the county people to impart a red tint to the clothing.

ANALYSES OF RED HEMATITE IRON ORES.

	Rossie, N. Y.	E. Tenn.	Clinton Ore. Wisconsin.	Iron Ridge, Wisconsin.	E. Tenn.	S. Penn.	Wayne Co., N. Y.
Peroxide of iron..........	88·89	94·71	71·26	81·35	81·26	57·54	63·81
Oxide of manganese.......	....	....	....	0·47	trace.	....	....
Alumina..................	1·32	1·39	4·80	2·80	3·40	5·48	....
Lime.....................	....	0·13	4·17	2·28	1·60	1·05	6 03
Magnesia.................	1·60	1·21	0·97	0·99	0·50	0·52	....
Sulphur	....	0·14	0·10	0·06	trace.	0·01	....
Phosphorus...............	. ..	0·34	....	0·48	....	....	0·43
Phosphoric Acid.....	....	....	3·23	...	1·45	1·55	....
Silica...................	13·20	1·80	5·39	4·32	6·50	29·99	....
Moisture.................	....	....	9·85	6·30	4·00	3·80	....
Carbonic Acid...	....	....	....	....	1·50	....	....
Total................	100·01	99 72	100·77	99·05	100·21	99·94	....
Metallic Iron............	58·72	66·30	49·90	56·44	56·88	39·90	44·31
Sulphur..................	....	0·14	0·10	0·06	trace.	0·01	...
Phosphorus.	....	0·34	1·74	0·48	0·633	0·68	0·43

Limonite, or brown hematite is apparently found in all portions of the world, and it constitutes an important element in the manufacture of iron in all iron-producing countries. As much misapprehension exists with regard to the nature and origin of the deposits of brown hematite, we give here a brief synopsis of their characteristics, which it will be important for all those who are interested in such matters to bear in mind. As is known, limonite is called brown hematite because it has a brown color and a brownish streak or powder, and is thus distinguishable from red hematite. Aside from its earthy matter it contains about 14 per cent. of water, constituting therefore the hydrated sesquioxide (red hematite being the anhydrous oxide). When pure, it contains 60 per cent. of metallic iron, but practically and generally the iron in it ranges from 40 to 60 per cent. of the mass. It is a peculiarity of this iron ore that it never occurs in regular and continuous deposits, but is found in concretions or botryoidal masses in sand or clay, filling crevices, pockets, and basins, or incrusting slopes; wherever, indeed, chalybeate water has precipitated its iron. Oftener than otherwise it is found associated with limestone rocks, because they more easily than others are dissolved by atmospheric water so as to form caverns and galleries where it may accumulate; and also because the limestone sometimes contains much iron, and in the removal of the carbonate of lime by solution the oxide of iron is left, and, to a certain extent, takes its place.

A belt of limonite ore beds passes down along the flanks of the Alleghanies from Maine to Georgia; and these deposits occur chiefly along the outcrops of the metamorphic Silurian limestones. Limonite also occurs in concretionary masses in the Cretaceous and Tertiary strata of this region, and in cavities or fissures in serpentine and other metamorphic rocks. Everything indicates that these deposits were formed by the accumulation of the oxide of iron precipitated from the ferruginous drainage of the iron-bearing Alleghany highlands. In date they range from the Cretaceous to the present time, and in quantity they vary from a few pounds to many thousands of tons. As will be inferred from the above description, the deposits of limonite are less regular and reliable than those of any other kind of iron ore. From its soft earthy and fusible character, this ore has been an important adjunct to the magnetic ores, and the two are now generally worked together.

Another series of deposits of limonite, scarcely less important than those we have enumerated, is one that reaches up along the west side of the mountains through Alabama and Tennessee into Kentucky, the most important beds being found along the outcrops of the Lower Carboniferous limestone. The ore occurs here in irregular accumulations similar to that of the eastern belt, but on the whole it is more inclined to form concretionary masses, and is of better quality.

Another brown hematite belt is found in Missouri. This sweeps in a circle around the Eozoic area which holds the crystalline ores of the central part of the State, and doubtless, as at the East, the one kind of ore is derived from the other. The limonites are unquestionably destined to play the same important part in Missouri that they have done along the Alleghany belt, in the reduction of the crystalline ores.

ANALYSES OF LIMONITE IRON ORES.

	Brandon, Vt.	Shelby, Ala.	Duchess County, N. Y.
Peroxide of iron....	66·16	82·82	91·89
Silica..............	12·69	0·29	4·02
Phosphoric acid.....	0·92	0·15	trace.
Sulphur	0·22		0·25
Lime....	2·25		1·06
Alumina.............	4·50	0·35	1·03
Magnesia	1·14		·23
Manganese—Oxide..	0·09	0·67	·32
Water	10·53	14·62	1 15
Carbonic acid.......	1·17		
Total..........	99·67	99·00	99·95
Metallic iron........	46·31	57·97	66·53
Sulphur.	0·22		0·25
Phosphorus	0·49	0·081	trace.

(To be continued.)

* From *The International Review* for November, A. S. Barnes & Co., New York, publishers.

A Birmingham Museum of Arms.

We take the following from the Birmingham *Daily Post* of recent date:

The Birmingham Museum of Arms had its origin in a very complete collection of Continental examples, formed by Cavalier Callendra, a member of the Italian Parliament, and sold to an English collector, who disposed of it to the guardians of the Birmingham Proofhouse. The *locale* of the Museum, No. 4 Newhall street, is well selected, the apartment in which the examples are displayed is roomy and well aired. The floor space is equal to 700 square feet, the wall space has been fitted up with neat, plain and substantial mahogany glazed cases, in which the various specimens are tastefully displayed. The examples were carefully and most judiciously cleansed under the superintendence of Mr. J. D. Goodman, who together with his son, Mr. Charles Goodman, with the occasional assistance of Mr. Allport, have arranged the examples in such order as to show the progressive improvements. Each example is carefully numbered and labelled, a brief description appended, and, where ascertained, the name of the maker and the period of production added; in fact, nothing which could add to the interest of the collection, or render it instructive, has been omitted or left undone.

The distinguishing title of the collection "A Museum of Arms," is sufficiently wide to include appliances of every kind used in war and field sports. The two cases to the left hand on entering the museum are filled with swords, rapiers, daggers and stilettos, all by celebrated Continental makers, the blades of some bearing the names of Antonio and Francesco Picino, and of Tomaso Alma Sebastian Ernanez, of Toledo, in Spain. Toledo blades centuries ago were deservedly celebrated for the quality and temper of the steel. The handles of many of the examples, formed of various materials, are curiously worked, and the blades decorated by engraving, damascened with gold, "watered" or "blued" in the most artistic manner. Some of the examples, apart from the interest they possess as illustrations of manufacture, are also interesting from association. The enthusiasm of visitors may be stimulated by an examination of the dagger used by Garibaldi in his early campaigns; the horror of others may be excited by a knife once possessed and used by a Neapolitan brigand. A rapier which, on being unsheathed, displays two additional blades with saw-like edges, in all probability served for assassin purposes, as no doubt were the stilettos exhibited, made in Florence and Genoa, used by bravoes hired for the commission of deeds of darkness and blood. A large two handed sword, hanging on the wall between the windows, used by the executioner to the Venetian Republic, was in all probability that with which the Doge Marino Faliero was decapitated. In these cases will also be observed capacious powder flasks of iron, steel, bronze, leather and ivory, decorated by processes in accordance with the material of which they are made. The examples in ivory are curious and artistically sculptured and carved. There are also some examples of engraved bayonets, which are curious.

On stands in front of windows looking into Newhall street are arranged a number of old gun barrels, some of which are of large size. These, it is more than probable, were used as the barrels of gingalls, or wall guns. One example may be noticed with a square tube fixed at the breech end, which was probably used for taking aim with, or as a "sight." Some of the smaller examples at their muzzles are funnel shaped, one peculiarly so. There are two examples curiously chiselled with scaled work, their nozzles terminating with horrid looking heads of dragons. (The barrels of blunderbusses, at one time used by cavalry regiments, were sculptured with a similar device; hence the name given to mounted soldiers, "dragoons.") A small barrel is carefully sculptured over with figures, but rust and time have all but obliterated the details of the design. In close proximity to these barrels is a "club" pistol, which did double duty—charged with powder it could be fired, after which it might be used as a "club" or "mace." If the bullet discharged did not reach its billet," an enemy's brains might be dashed out. The "mace" use of the "club pistol" made it the more effective of the two purposes to be accomplished by the weapon.

Long ere Roger Bacon invented gunpowder, our countrymen fought with bows formed of wood—the "yew tree good;" at Cressy, Poictiers and Chevy Chase, foemen were taught the force and accuracy with which arrows in length "a good cloth yard and moe" were shot by English archers. The Italians at an early period used cross-bows of steel, so stiff to brace as to require the aid of levers and keys to accomplish the lodgement of the string of the bow preparatory to the discharge of the arrow, bolt, or "quarrel." Of cross-bows of steel there are many very interesting examples, their stocks made of costly woods, such as ebony, inlaid with ivory or pearl shell, carved, sculptured, or engraved with various designs or devices. There is an especially interesting example of a very small bow of the "Arbalist" type, which will be examined with inverest. It is an articulated or jointed bow, the stringing and the propulsion of the bolt being accomplished by means of a screw. Among cross-bows the example alluded to appears to have stood in the same relation as a pistol to a gun, and to be used as a "concealed arm." In connection with cross-bows, iron "cricks" or keys are shown. They were used for drawing "to rest" the string of the bow. Additional force when required was secured by the use of a *piede de capri*, or goat's foot lever, an example of which is exhibited.

The simplest form of firearm—the match-lock—took the place of the cross bow. The match at first applied by the hand, was next transferred to, and held in a moveable cock, or head, and dropped down on the powder in the priming pan attached to the barrel or tube, charged with powder and ball, which it was intended to discharge. In the course of time the application of simple mechanism, with the addition of a trigger (hair triggers were the invention of a gunsmith of Munich, in 1543), operated upon by pressure of the hand, released the cock holding the match, and formed the first and earliest real gunlock. There is a curious early example among those exhibited wherein by gentle pressure on a long lever (very much resembling that which does duty in a "Martini" as trigger guard, and serves also to withdraw the metallic case of the spent cartridge) the lighted match was made to descend and fire off the piece. The visitor will observe the forms of the stocks in these early examples, and that they are not of the contour stocks are now. The trigger guards are also pecular; in many of the examples the form of the guard was evidently intended to give security of grip to the user of the arm; the three separate breaks in the contour of the guard (which are seen in profile) were for the reception of three fingers of the hand holding the gun, while the forefinger of the same hand moved the trigger. A curiosity in this division of examples will be found in the "match," combined with the use of the "flint," the invention of Prince Monticuoli, date 1630. There is also a Brobdignagian example, intended to be fired from a wall or "casemate," or from the deck of a galley.

The "wheel" lock in turn gradually displaced the "match" lock. The wheel lock did away with the necessity for the lighted match altogether, the spark which ignited the priming powder in the pan being produced by the friction of a disc of steel, made rough on its outer diameter, or cut with teeth like a file. The spindle on which the steel disc was mounted had attached to it a helical flat coiled spring (like that of a watch fuzee, or clock which moves by the operation of a spring). The spring was wound up with a key, and held in that condition by means of a ratchet wheel; on the release of the catch of the ratchet (by pulling the trigger) the spring operated, causing the steel disc to revolve; its friction against a firmly held piece of pyrites evolved a spark, or a succession of sparks, which ignited the priming powder in the pan, and the discharge of the contents of the barrel followed as a result. The illustrations of the wheel lock, as applied in the complete gun, consist chiefly of examples of what the French designate as "arms de luxe," *i. e.*, arms of a highly decorated or ornamental character externally, used by crowned heads, nobility, and gentlemen occasionally on the battle field, but more frequently in the chase, for field sports, &c.; the exceptions among the examples being a wheel lock gun for cavalry, "the stock to use as a club," also a very large example with the barrel internally rifled (date about 1550—rifling was introduced at least 50 years earlier, *i. e.*, between 1440 and 1500), externally sculptured with serpents and gorgons, intended to be shot from a rest, which its bulk and weight necessitated. The great proportion of the smaller and more ornate examples are by Italian gunsmiths, and no doubt the decoration (which in the majority of cases is of a high class) was the result of Italian art workmanship. The subjects which enter into the decorative enrichments are very varied. In some examples the stocks are inlaid with ivory in figures of flowers and fruit (date 1650); in others the chiselled steel mountings consist of arabesques of flowers and monsters (1600.) There are also examples in which the lock plates, &c., in their contours, are very elegant, and are engraved with the representation of a hunting party, or an army encamped, &c. In one example the stock is inlaid with gold, and threads of silver inserted in very graceful and delicate filagree-like arrangement. To these enrichments the brilliancy of pearl shell is added. Visitors to the Museum of Arms who also visited the exhibition of 1851, may remember "The funny creatures sent from Wurtemberg," in an example of a wheel-lock gun, bearing the armorial devices of the royal house of Este. On the ebony stock, inlaid with ivory, are represented the hunted as masters, and a wolf, a fox, a hare, and a stag as engaged in cooking a sportsman. In another example, in which the stock is inlaid with ivory, heathen mythology furnishes the subject, representations of Mercury, goddesses, and the shepherd Paris being engraved thereon.

The "wheel" preceded the "Snaphaunce;" then followed the flint lock. In both of these the wheel arrangement was dispensed with altogether. Their action was the result of ingeniously formed and combined flat springs, in connection with detants, tumblers, &c., operated upon by the trigger, by which the "cock" holding the flint was released and propelled down against a furrowed piece of steel conveniently placed, but was afterward replaced by the movable pan-cover which served the same purpose. The earliest form of flint lock (though pyrites was used instead of flint) was that named the "Snaphaunce," or "Snap-hans," the Dutch for "hen stealers." The true name of these locks was "Chenapan," corrupted from the German word "Schnapphahn" (a cock pecking), which the action of the lock much resembles. In France the name of "Chenapan" was given to robbers, as also to Spanish bandits of the Pyrenees, also to the Barbets of the Alps (Vaudois), forced by religious intolerance to become bandits, all of whom were armed with guns fitted with Snaphaunce locks. The peculiarities of these and other early gun locks are clearly set forth in the paper written by Mr. Goodman on the "Birmingham Gun Trade," to be found in the well-known volume "Birmingham and the Midland Hardware District," edited by Mr. Samuel Timmins. The value of the paper alluded to is increased by the institution of a permanent local Museum of Arms; the value of the Museum is in turn enhanced by the remarks in "the paper" being illustrated by many of the examples in the Museum.

The examples of complete guns classified as flint-lock are ninety in number, the great majority of unequalled beauty, triumphs of the gunmaker's art; produced by makers as great in their calling as the great artists who, in another direction—*i. e.*, in art—have achieved fame. Examples will be found in the museum by the great armorers of Italy, Spain, Germany, and France; by Natal del Moro, of Rome; Magona, Jovelli, and Sarranci, of Pistoja (where pistols were supposed to have been first made); there are also examples by members of the Lazarino and Commavzo families, in which the art appears to have been hereditary for nearly one hundred and fifty years (*i. e.*, from 1570 to 1700), and by Gabriel de Algoria, gunsmith to Ferdinand VI. of Spain, &c. Special excellence in the production of parts of guns at a comparatively early period was also achieved, thus there are barrels bearing the names of Provencal, of Turin; Bruni, of Milan (Italians); and of Rubani, Esquibai, Bis, and Gasper Fernandez (Spaniards). Spanish barrels were mounted by Italian gunsmith, an illustration of which will be found in a flint-lock gun, the barrel the production of the last-named Spanish maker, the mounting by Lorenzoni, armsmith to the Medici family, of Florence. The contents of the Museum show examples of what has recently, from time to time, been set forth—viz., that breech-loading and many other inventions are not of to-day (however much the ideas of the original inventors have been improved upon). Of this there are numerous proofs. The falling "break-off" arrangement for breech-loading, claimed by Lefaucheux, has here two prototypes. In the preceding case there is a veritable "mitrailleuse," with seven barrels (an English arm marked with the broad arrow, date 1780). There are two examples of breech loaders, in which a cylindrical plug, fitted into the breech-box, is moved by a lever, permitting the introduction of a bullet, the powder being placed in a receptacle at the side; on the plug being turned (by the lever handle) the powder drops behind the bullet, now placed in proper relation to the barrel, the trigger drawn, and the contents of the piece is discharged. But by far the most complete and beautiful example of a veritable breech-loader (in which even a cartridge has been used) bears date 1694. It is the work of a justly-celebrated Italian gunsmith artist, Aquafresca, of Borgia. In it the barrel, by the action of a spring, moves horizontally to the left, and permits of the introduction of the cartridge, which is slipped into a tubular steel case, removable after the discharge of its contents. The ingenuity displayed in this example is only equalled by its exquisite workmanship, most minutely carried out in every part, down even to the smallest detail. There is exquisite sculpture on the metal work, of the most precise, symmetrical, yet artistic description. This example is an evidence of what the human hand can accomplish in connection with brain power; it is a perfect unity, and in these days, when the cunning workman is becoming exceptional, it does one good to see so noble an example of pure and simple handicraft—the elegance of the "stock," and its beauty of form, the surface unbroken, saving and excepting by an inlay of silver thread elegantly introduced. It may be added, a portion of the beautifully chased and engraved butt-plate slides to one side, and reveals tools necessary for taking the gun to pieces, and a pair of bullet molds.

It is impossible to convey, even imperfectly, anything like an idea of the wealth of this department of the Museum, whether as regards ingenuity of construction, workmanship, artistic decoration, or the value of the rare material employed in the "making up" of the several examples. Suffice it to say that the most valuable of metals, the rarest of woods, ivory, pearl, and even gems, lend their united charms for the beautification of what are truly examples of "arms de luxe."

Among the other curiosities of gun making may be examined an example of a two-lock gun, which fires two charges from the same barrel, one after the other. Very terrible must have been the force of the discharge of the short, dumpy, wide-bore blunderbuss (shown in the case containing blunderbusses), with barrel of bronze, originally possessed by a notorious brigand, which, when loaded with bullets of stone, &c., and with the shoulder of a comrade for a rest, was discharged at the lone traveler among the wilds or fastnesses of Calabria. Curious when examined is the air gun (breech loader), by Keuchenreiter. Concealed in the butt is a miniature pair of bellows, operated upon by winding up a helical spring, in the manner of the old wheel lock. Sufficient air for a single charge was condensed in the magazine, and its contents were discharged by means of a hair-trigger. (The force of air obtained by the bellows, not larger than those which faintly imitate a dog's bark in a child's toy, is very considerable.)

Trade Report.

Office of THE IRON AGE,
WEDNESDAY EVENING, Oct. 28, 1874.

During the past week Wall street has been without feature of general interest, and dullness has prevailed in all departments of the financial markets. The money market is without important change; call loans ranging 2 @ 4 per cent., according to the collaterals pledged. Mercantile paper is quotable at the rates given in our last report, 5 @ 6 per cent. for short date, and 7 @ 9 per cent. for long. The bank statement shows a reduction of $3,288,800 in the total reserve, which still leaves them $15,839,800 above the amount required by law. The averages of the past two weeks compare as follows:

	Oct. 17.	Oct. 24.	Differences.
Loans	$282,275,200	$281,873,500 Dec.	$401,500
Specie	15,007,800	13,585,200 Dec.	1,422,600
Leg. Ten	60,697,000	58,830,800 Dec.	1,866,200
Deposits	239,122,700	226,304,800 Dec.	3,817,900
Circulation	25,060,500	25,013,500 Dec.	47,000

The gold market has been alternately firm and heavy during the week, but the premium has fluctuated within very narrow limits. On Thursday the Treasury sold $500,000 in gold at 110·06¼ @ 110·2. The following shows the highest and lowest daily quotations on the official record of the gold room:

	Highest.	Lowest.
Thursday	110¼	110⅛
Friday	110⅛	110
Saturday	110⅛	110
Monday	110	110
Tuesday	110	110
Wednesday	110¼	110

The stock market has been dull during the entire week. The transactions in speculative shares have been very light, and the general tendency of prices has been downward. The principal dealings have been in Lake Shore, Union Pacific, Erie, Wabash, Western Union, Northwest and Pacific Mail. The highest and lowest of to-day's quotations of active shares are given below.

Government bonds continue dull and steady, the market being without feature of interest at home and abroad. State bonds are heavy, with a slight improvement in Missouris and Tennessees. During the week a better inquiry for desirable railway mortgages has been reported. We give below the prices of governments at the close of business to-day.

The following tables show the movements in foreign trade for the week:

IMPORTS.

	1872.	1873.	1874.
Total for week	$7,459,511	$5,830,093	$4,760,918
Prev. reported	355,131,593	328,113,830	322,654,331
Since Jan. 1	$362,591,104	$333,943,923	$327,415,249

Included in the imports of general merchandise for the week are:

	Quant.	Value.
Brass goods	7	$428
Bronzes	69	14,493
Chains and anchors	66	2,458
Cutlery	84	32,374
Guns	112	20,515
Hardware	58	6,194
Iron sheet, tons	119	22,788
Railroad bars	2,736	48,521
Iron cotton ties	1,279	3,487
Iron, other, tons	196	12,019
Lead pigs	7,086	25,937
Metal goods	89	16,831
Nails	18	2,746
Needles	12	8,415
Platina	4	7,473
Plated ware	2	269
Per. caps	7	1,261
Saddlery	8	2,154
Steel	1,970	36,366
Tin, boxes	11,054	92,933
Tin, slabs, 1951	141,194	29,116
Wire	703	7,773
Zinc	264,600	15,531

EXPORTS EXCLUSIVE OF SPECIE.

	1872.	1873.	1874.
For the week	$5,366,824	$6,404,434	$4,743,516
Prev. reported	183,703,156	238,002,655	235,651,962
Since Jan 1	$189,069,980	$244,407,089	$240,395,478

EXPORTS OF SPECIE.

Total for the week	$488 059
Previously reported	43,146,532
Total since January 1, 1874	$43,634,591
Same time in 1873	43,309,445
Same time in 1872	60,860,371

Government bonds close as follows:

	Bid.	Asked.
U. S. Currency 6's	117¾	118
U. S. 6s 1881, reg	117⅝	117¾
U. S. 6s. 1881, cou	118⅝	118¾
U. S. 1862, 5-20 reg	110¾	111
U. S. 5-20 1862, cou	113½	114
U. S. 5-20 1864, reg	111¾	112
U. S. 5-20 1864, cou	116⅛	116¼
U. S. 5-20 1865, reg	113	113
U. S. 5-20 1865, cou	117⅛	117¾
U. S. 5-20 1865, reg. new	115⅝	116¼
U. S. 5-20 1865, cou	116⅝	116¾
U. S. 5-20 1867, reg	117	117¼
U. S. 5-20 1867, cou	117⅛	117¾
U. S. 5-20 1868, reg	117¾	117½
U. S. 5-20 1868, cou	117⅜	117⅞
U. S. 10-40 reg	111⅛	111⅞
U. S. 10-40 cou	113	113¾
U. S. 5s. 1881, reg	111½	111⅝
U. S. 5s, 1881, cou	113¾	113

The following were the highest and lowest prices of stocks to-day:

	Highest.	Lowest.
N. Y. Cen. & Hudson Consolidated	100¾	100¼
Lake Shore	80½	79½
Rock Island	97	96¾
New Jersey Central	107¾	107¾
Wabash	29¾	29¾
Harlem	139	139
Western Union Telegraph	79⅞	79½
Atlantic and Pacific Telegraph	16	16
Northwestern	36⅝	36¼
Milwaukee & St. Paul	32½	32
" Pref	50⅜	50½
Panama	114	113¾
Pacific Mail	45¼	45½
Erie	29¾	28⅞
Ohio & Mississippi	28½	27⅞
Union Pacific	33⅞	33½
C. C. & Ind. Central	10⅜	9¾
Hannibal and St. Joseph	23⅞	23⅜
At. & Pacific pref	37	37
Maryland Coal	18	18
American Mer. Union Express	62	62

GENERAL HARDWARE.

Trade continues in much the same condition noticed for the past few weeks. There are few if any out of town buyers in the city, and although some houses report good letter orders for special lines, still there is no general improvement noticeable. What few changes have occurred in prices will be found below. The general tone of the market is firm.

As the impression seems to prevail in many quarters that the manufacturers themselves furnish the quotations that appear in this paper under the head of "New York Wholesale Prices," we take this opportunity to relieve them of any responsibility in the matter, and would state that the prices quoted are, as a rule, furnished to this paper on our own solicitation, and represent the actual figures at which the goods are offered by the leading houses in this city; these figures are corrected up to Wednesday evening.

The "Western Hardware Association" has issued the following circular. The list of names is respectable, but the movement is not so universal as we were led to expect:

THE WESTERN HARDWARE ASSOCIATION.

At a call for a meeting of Western wholesale dealers in Hardware, for a general consultation as to the state of the trade, and for a better personal acquaintance with each other, a convention was held in Chicago, Tuesday, October 13, 1874. The following firms were represented, and after a free interchange of views, a permanent organization was formed, under the name of "The Western Hardware Association."

R. W. BOOTH, Cincinnati, President.
JOHN NAZRO, Milwaukee, Vice-President.
JAMES M. HORTON, Chicago, Sec. and Treas.

Names of the Firms Represented and Places of Business.

R. W. BOOTH & Co., Cincinnati, O.
HOWELL, GANO & Co., "
L. PAPPENHEIMER & Co., "
DICKSON, CLARK & Co., "
W. A. MCCALL & Co., "
WHITAKER, PHILLIPS & Co., Toledo, O.
LAYMAN, CAREY & Co., Indianapolis, Ind.
DUCHARME, FLETCHER & Co., Detroit, Mich.
BUHL, DUCHARME & Co., " "
PRENTISS BROS. & Co., " "
STANDART BROS., " "
C. B. JAMES & Co., " "
JOHN NAZRO & Co., Milwaukee, Wis.
R. HANEY, & Co., " "
C. SHEPARD & Co., " "
JOHN PRITZLAFF, " "
MILLER BROS. & KEEP, Chicago, Ill.
HIBBARD, SPENCER & Co., " "
SEEBERGER & BREAKEY, " "
MARKLEY, ALLING & Co., " "
BRINTNALL, TERRY & BELDEN, Chicago, Ill.
WM. BLAIR & Co., Chicago, Ill.
A. F. SHAPLEIGH & Co., St. Louis, Mo.
SIMMONS HARDWARE Co., " "
MCLARAN, WILLIAMS & Co., " "
W. M. WYETH & Co., St. Joseph, Mo.
NELSON & Co., Burlington, Iowa.
SICKELS & PRESTON, Davenport, Iowa.
E. H. MACK & Co., " "
J. R. NUTTING, " "
ANDREW & TREDWAY, Dubuque, Iowa.
WESTPHAL, HINDS & Co., " "

The following resolutions were unanimously adopted:

Resolved, That it is the sense of this Association that the Secretary of the Western Hardware Association be instructed to issue a circular, signed by all the houses here represented, to the American manufacturers of Hardware, requesting them to discontinue, so far as practicable, the use of all lists and discounts and printed quotations, either by circular or publication in papers.

Resolved, That we will give preference to those manufacturers who comply with the above request.

Resolved, That we, as jobbers, hereby agree to discontinue issuing printed prices, or any printed or written list with net prices or discounts attached, except such goods as have prices made for the retail trade by the manufacturers.

Resolved, That we will discontinue the selling or invoicing of goods by discount, as soon as we receive the co-operation of the respective manufacturers.

Resolved, That any person or firm, a member of this Association, sending out a circular, shall mail a copy of each issue to every firm belonging to this Association.

Resolved, That the thanks of this Association be and are hereby tendered to those manufacturers who have already adopted the system of selling their goods at *net* prices.

[Signed.] JAMES M. HORTON, Sec'y.

The above, which is all they have seen fit to give the public as to their proceedings, simply puts in an official form the complaint they have for years been making against price lists and discount sheets and *The Iron Age*; and it simply means that they consider it a great disadvantage to them to have their customers know the prices at which they can buy goods in New York or of the manufacturers. It is very natural that they should feel in this way, but we cannot commend their discretion in plainly confessing it. The Hardware jobber is an institution peculiar to America, and grew out of the fact that thirty years ago only about 10 per cent. of the Hardware used in the country was of domestic manufacture, and the importing houses not wishing to do business with the small trade, a class of wholesale dealers sprung up wherever there was business to support them. There were over thirty in this city. The retail dealers and the manufacturers of Hardware were at that time too weak and unimportant to do business together without the aid of a "middleman." As there is no need of any middleman when the buyer and seller can easily and cheaply come together without his aid, it is and has always been the aim of the jobbers to keep the manufacturers and the retail trade as far apart as they can, and in every way to make their dealings as difficult as possible. In this they are only following in the steps of the New York trade, who, about fifteen or sixteen years ago, in a similar convention, passed a resolution not to sell the goods of any American manufacturer whose place of business was stamped on his goods or printed on his labels. They also opposed the introduction of American goods in every way they could, because they could make more money on imported goods. The New York jobbers then did not wish their customers to know where the goods they sold were made; now, the Western Hardware Association does not wish their customers to know what other people's prices are.

The request of the Western Hardware Association, that manufacturers discontinue the use of "lists and discounts and printed quotations, either by circular or publication in "papers," is neither reasonable nor practicable, and the threat which accompanies it is not likely to make the manufacturers consider it any the less an impertinent dictation to them as to their mode of doing business; beside, most of the manufacturers are more or less openly the competitors of the Western jobbers for their best trade, *i. e.*, the substantial retail dealers. With a large proportion of manufacturers and importers, such houses are the most valued portion of their business, and both parties have more pleasure and profit in their mutual dealings than if they were with jobbing houses. The retail dealer, unless his business is very small, has a natural desire to deal direct with "head quarters," and manufacturers reciprocate the feeling, for this trade is more steady, more profitable, and more safe, than any other.

Both abroad and here, the immense detail of the Hardware business has made lists and discounts a necessity. It is the only way in which a clear idea of prices can be concisely given. No person with whom we have talked upon the subject has the least expectation of seeing them given up. It is a point worth noting here, that the first circular issued in this country, giving prices of Hardware, of which we can learn, was sent out about twenty years ago by Tyler, Davidson & Co., of Cincinnati, and the next disturbance in the trade was caused by the rival price lists sent out by Blair, of Chicago, and Nazro, of Milwaukee. This was all before price lists were issued by any Eastern jobbers, or, to any extent, by manufacturers, and the prices quoted gave a great deal of trouble to our New York houses.

So far as the business of Western jobbers is based on the ignorance of their customers, it will not succeed. The fact that they are trying to prevent the dissemination of intelligence will make their customers more eager to learn all they can about prices, and manufacturers are not likely to be backward in giving them all the information they want; and as for *The Iron Age*, the trade may still depend upon finding in its columns prompt information of all changes in prices and quotations of leading goods, even if the trade should adopt the rule of selling by net prices.

We have received the following letter from a gentleman who is a member of one of the largest and best known manufacturing firms in America, and one which stands at the very head of its line of business:

To the Editor of The Iron Age: I notice with much interest the call for the meeting of the Western jobbers, and also the communication signed "Hardware," both of which appear in your journal of October 15th. Probably by this time they have met and adjourned, having (let us hope) "settled" the question.

As a manufacturer, and having sold probably more goods of my line to the jobbers than any other maker of similar goods, allow me to give a little of my experience, which I am assured is shared by the great majority of manufacturers.

The question of a manufacturer being able to sell his goods at a margin satisfactory to the jobbers is fast being solved negatively, and the causes are: First.—Competition among manufacturers in selling to the country trade. Second.—Competition between jobber and manufacturer where the maker has to meet prices on his own goods. Third.—Competition between jobbers themselves. Eastern made goods in Chicago are certainly worth more than the same goods in New York, and yet the retail trade often put the question to me, "How is it I can buy your goods cheaper in the West than I can buy them here in New York, and also save the freight?" A question, I confess, that used to puzzle me, and which I could not answer. I tried to remedy it, and had a paper drawn up and printed, binding every jobber who sold my goods to adhere to my own established prices, and nearly every jobber refused to sign it, on the ground that a measure for their own protection was "dictating to them how they should conduct their business." What is the result of their refusal. Just this—I meet every price of a jobber on my own goods, and the final result will be no margin at all to jobbers. When I first began to manufacture, almost every dollar's worth I made was sold to jobbers. When I saw "piles of goods" going out of the factory I felt happy, but when I settled accounts, and had to "guarantee" and "meet somebody else's prices," and compromise at 50 per cent. or extend on one, two or three years without security or interest, and figured, up the grand balance, I found I was doing a huge business for scarce 5 per cent. profit on the capital invested, while doubtless the jobber was no better off, having "given away" all his profit. There is in Philadelphia to-day a hardware jobbing concern that do an immense business and yet make no money, and, what is more, won't let anyone else make any. The largest cutlery company in the country impaired their capital to the tune of a quarter of a million dollars, and the principal officer told me it had all been given away to jobbers. And how much of this great sum have the jobbers saved? The only cutlery company in this country that pays dividends sells but a very small part of its production to jobbers; *vice versa*, the cutlery companies that do sell the jobbers almost exclusively pay no dividends, the moral of which is ——— &c., &c. The great saw makers, Disstons, compel their jobbers to adhere to prices, and had the pluck to refuse to sell a cent's worth to one of their largest customers who broke prices; all honor to them, and would there were more such (but all makers are not in so independent a position as the Disstons).

I now employ ten traveling agents and sell to such jobbers as want my goods, and protect them on all the margin I can afford, so far as they protect me, but my instructions to my agents are to adhere to prices, but meet prices on my own goods *every time*. Now, I am not at war with the jobbers. I have many warm friends in their ranks, and have had many years of pleasant, though not profitable, intercourse with them. I admire a good, substantial, old fashioned, conservative jobbing house, who sell goods not for glory but for profit, and—but I forbear to draw conclusions. Hear the end and moral of the whole matter, "Live and let live." Yours, COFFEE MILL.

MASSACHUSETTS, Oct. 20, 1874.

Trade in Foreign Hardware is quiet, and prices remain as previously quoted. The following joint circular of Alfred Field & Co. and Beam & Murray will be issued on the 1st proximo:

Established 1836.

ALFRED FIELD, WILLIAM FIELD.
ALANSON H. SAXTON. HENRY C. FIELD.

OFFICE OF ALFRED FIELD & Co.,
93 CHAMBERS AND 75 READE STREETS,
NEW YORK, Nov. 1, 1874.

Gentlemen—As you will notice by the announcement on the other side, we have this day purchased of our old friends and customers, Messrs. Beam & Murray, their stock of goods and lease of store 93 Chambers and 75 Reade streets. As most of our friends have been aware, our location in John and Dutch streets has not been a convenient one for them, being some distance away from the center of the Hardware Trade. For the past four years we have felt the necessity of making a change, and have only delayed this long on account of being our own landlords on John and Dutch streets. The purchase of the stock and lease from Messrs. Beam & Murray has enabled us to secure a good warehouse in the right location.

For the last few years, in addition to our regular commission business, we have been carrying a large stock of goods in our line, so as to enable us to meet constant short importations, and we have found this branch of our business has been appreciated and well patronized. We now purpose to increase our line of goods for stock, and so more effectually meet the wants of our friends. We shall also add Wostenholm's cutlery, Butchers' files and tools, razors, &c., &c.

Our intention is, as hitherto, to be always prepared to supply our importing friends with any goods they run short of on the most favorable possible terms.

Our Birmingham and Sheffield samples for importation orders will be always fully kept up and remain the leading branch of our business. In addition to our present effective staff, we have pleasure in announcing that Mr. George W, Murray, for many years the active working partner of Messrs. Beam & Murray, will remain with us.

We beg to take the present occasion to extend our best thanks for the very liberal patronage bestowed upon us for nearly half a century past, and beg to assure our friends that we shall take special care to serve them well in the future.

We are, dear sirs. Very truly, yours.
ALFRED FIELD & Co.

Offices and Warehouses at
New Edmund street, Birmingham, England.
No. 23 Westfield Terrace, Sheffield, England.
No. 6 New Quay, Liverpool, England.
No. 445 St. Paul street, Montreal, Canada.
No. 75 Gravier street, New Orleans, U. S.

OFFICE OF BEAM & MURRAY,
93 Chambers and 75 Reade streets,
NEW YORK, November 1st., 1874.

Gentlemen.—We beg to inform you that we have this day sold to our old friends, Messrs. Alfred Field & Co., our entire stock of goods and lease of our store. We have long been purchasers of Foreign Hardware through this firm, our late Mr. Beam having dealt with them as early as 1859, and we take great pleasure in saying they have always served us exceedingly well, and gave us very good satisfaction.

We beg to extend our best thanks to our numerous friends who have so liberally patronized us in the past.

Our Mr. George W. Murray has made arrangements to remain with Messrs. Alfred Field & Co., and with increased facilities will be better prepared than ever to give good satisfaction and favorable prices to purchasers of Foreign Hardware. Very truly, yours,

BEAM & MURRAY.

The market for Nails is weaker, if anything, than when we last reported it. 10d. continue to be quoted at $3·60 @ $3·75, net, but small orders are easily placed at the former figure, and little difficulty would be experienced in shading it for an order of 200 kegs and over. The demand is light.

The Hart Bliven & Mead Mfg. Co. have reduced the price of Bronze Metal Store Door Handles Nos. 70 and 170, on page 103 of Catalogue of 1873, and pages 20 and 21 of Appendix No. 1, of 1874. The present discount is 70 and 10 per cent., formerly 60 and 10 per cent.

George B. Walbridge has added to his line of specialties Improved Brass Pad Locks, manufactured by the Penn Lock Works. They invite the attention of the trade to their Locks Nos. 16 18 and 20, which are extra heavy, well made goods, specially adapted for railroad car and switch purposes. The list, which is subject to a discount of 15 @ 20 per cent., according to quantity, is given below:

Brass Spring Padlocks.
Drilled Keys.

			Per doz.
No. 2, 1½ inch,	No	Drop	$5·25
" 4, 1⅞ "	No	"	6·50
" 5, 1⅞ "	Plain	"	7·25
" 6, 2⅛ "	No	"	8·00
" 7, 2⅛ "	Plain	"	8·75
" 8, 2⅛ "	Spring	"	9·50
" 9, 2⅛ "	Spring	" and Chain	10·50
" 10, 2⅛ "	No	"	9·25
" 11, 2⅛ "	Plain	"	10·00
" 12, 2⅛ "	Spring	"	11·00
" 13, 2⅛ "	Plain	" and Chain	11·50
" 14, 2⅛ "	Spring	" " "	12·50

Flat Steel Keys.
Two Keys Each.

			Per doz.
No. 60, 2 inch,	No	Chain	$8·50
" 62, 2¼ "	"	"	10·00
" 64, 2¼ "	With	"	11·00
" 66, 2½ "	No	"	12·50
" 68, 2½ "	With	"	13·50

Heavy Railroad Car and Switch Locks.

No. 16, 2½ inch, H'vy Railroad Car and Switch Lock, 2 Tumblers, Spring Drop and Chain..$16·00
No. 18, 2¾ inch, *Extra* Heavy Railroad Car and Switch Lock, 2 Tumblers, Spring Drop and Chain..... 20·00
No. 20, 3 inch, Railroad Car and Switch Lock, 2 Tumblers, Spring Drop and Chain..... 24·00

The Enterprise Mfg. Co.'s goods are quoted both by themselves and their agents at discount 20 per cent., and we are informed that this price will be, and is, strictly adhered to. The quantity discount is, as heretofore, 20 and 10 per cent. The Russell & Erwin Mfg. Co. have in stock a full assortment of the Florence Club Skate, which they offer to the trade at $3·50 per pair, less discount 25 per cent. The principle on which this skate is constructed is novel, and is covered by patents, issued March 31st and August 18th of the present year. For a low price Skate they offer Florence Steel Skate with heel sockets, screws and straps com plete at $9·00 per dozen pairs net. These are well finished goods, and both of the above mentioned styles are made in all sizes from 8 to 11½ inches. Illustrations of these Skates will be found in advertisement on the 13th page.

J. Clark Wilson & Co. have added to their specialities, H. Clark's Superior Brad Awls and Tools, which they warrant equal to any manufactured. These goods are handsomely finished in apple wood, and are packed in half dozen boxes at the following price:

No. 1 Brad Awls, only (10 Tools)...per dozen, $10·50
No. 2 " and Tools (20 Tools) " 12·50
Discount to the trade 30 and 10 per cent.

These goods are illustrated in their advertiseon the 20th page.

Bruce & Cook have issued the following card:

BABBET METAL.—We desire to call attention to our new N. P. U. brand of *Babbet Metal*, made to supply the need of a reliable metal of low price. We offer this with confidence as superior to anything now offered at the price, would like a test order, and will guarantee a quality uniform to samples. Lots 50 to 100 lbs., 9c.; 1000 to 2000 lbs., 8¼c. We have always in stock regular qualities, A at 25c.; B at 20c.; C at 15c.; D at 12c.

SOLDER.—We are still manufacturing superior Solder, which our friends will justify us in saying is cheaper for its quality than any in this market. We shall maintain this standard of quality, and solicit your orders.

No. 1,	100 lbs. lots, 15c.;	Cases of 500 lbs.,	14c.
Extra,	" 16c.;	"	15c.
Half and half,	" 17c.;	"	16c.

Cases 40 cents each.

The following list of Self Attaching articles manufactured by the Thurston Knob Screw Co., Fernald & Sise, agents, was issued under date of September 1st. On another page we publish an illustrated notice of these goods, to which we invite the attention of our readers:

Black Walnut Universal Hat and Closet Pins.

4 inch, Short Screw, $4·00 per gross..... .. dis. 10 %
3 inch, Short Screw, $3·50 per gross.....10 %
3¼ inch, Short Screw, $3·00 per gross.....10 %
2 inch, Short Screw, $2·75 per gross.....10 %

Warranted Strong and Durable.

3 inch $3·75, 4 inch $4·25, Long Screw, for plastered walls.....dis. 10 %
Bases, $1·00 per gross, for plastered walls.....10 %
Long Screws are put in 3 and 4 inch only. Turn into a solid shoulder.

Door Stops.

Black Walnut, 2½ inch, Flanged Rubber Cushioned, best quality, per gross, $9·00.....dis. 40 %
Black Walnut, 3 inch, Flange Rubber Cushioned, best quality, $10·50.....40 %
Birch, 2½ inch, Flange Rubber Cushioned, per gross, $8·00.....40 %

Door and Furniture Fenders.

Black Walnut, 2 inch Base, Flange Rubber Cushioned, per gross, $8·00.....dis. 40 %

Picture Knobs.

Black Walnut, ¾ inch, Metal Base, per gross, $5·75.....dis. 50 %
Black Walnut, 1 inch, Metal Base, per gross, $6·50.....50 %
N. B.—Neither Gimlet nor Screw Driver required to put them up.
A full line of these goods are kept in stock at the warehouse of the agents in this city.

The Stephens Patent Vise Company, No. 41 Dey street, have issued the following list for Stephens' Patent Parallel Vises and attachments. These goods have been exhibited at all the leading expositions in this country, where they have been awarded the highest premium, and at Vienna, in 1873, they received the medal of merit. This list is subject to discount 20 per cent. to the trade:

Rough Cut or Smooth Jaws.

Width of Jaw. Inches.	Opens. Inches.	Weight Flat Vise. Lbs.	Weight Swivel Vise. Lbs.	Price Flat Vise.	Price Swivel Vise.
2	2¼	2	3	$4·00	$4·75
2¾	3	12	14	5·50	6·50
3½	5	35	42	9 00	10·50
4½	6½	60	66	12·50	14·50
5½, Ex. H'dle.	9	110	120	22·00	26·00
6½, Ex. H'dle.	11	160	175	33·00	39·00

Filers' Vises, same sizes and prices.
Jewelers' Vise, furnished with a solid steel Anvil, 50 cts. extra.

Taper Attachments.

2 in.	2¾ in.	3½ in.	4½ in.	5¼ in.	6¼ in.
$2·00	2·75	4·00	5·50	7·50	10·00

Pipe Attachments.

2 in.	2¾ in.	3½ in.	4½ in.	5½ in.	6½ in.
$2·00	2·75	4·00	5·50	7·50	10·00

Table Vise Clamps, Japanned.

2 in. Flat.	2 in. Swivel.	2¾ in Flat.	2¾ in. Swivel.
$1·00	2·00	2·00	3·00

Brass Vise Caps.

2 in.	2¼ in.	3½ in.	4½ in.	5½ in.	6½ in.
$0·50	0·75	1·00	1·25	2·00	2·50

Wood Workers', Coach or Harness Makers' Vise Attachment.

2 in. (2x2 in.) $2·00	2¾ in. (3x3 in.) 3·00
3½ in. (4x4½ in.) $4·00	4½ in. (5x5½ in.) 5·00

Extra for Nickel Plating Jewelers' Vises and Attachments.

	Extra.
2 in. Flat or Swivel Vises, extra finish	each $5·00
2 in. Taper Attachment,	" 1·00
2 in. Pipe "	" 1·00
2 in. Flat Table Clamp,	" 1·50
2 in. Swivel "	" 2·50
2 in. Vise Caps,	" ·50
2 in. Wood Working Attachments, extra finish	" 2·00

George B. Walbridge, No. 99 Chambers street, has just issued the following list and discounts for the goods which he represents:

Buffalo Forged Horse Nails.
Hammered from Best Norway Iron.

No.	6	7	8	9	10
Cents per lb	28	26	25	24	23

National Horse Nails
Pointed and Ready for Use.
"Finished."

No.	5	6	7	8	9	10
Cents per lb	28	25	23	22	21	20

"Extra Finished."

No.	5	6	7	8	9	10
Cents per lb	30	27	25	24	23	22

Discounts on National Horse Nails.

1000 lbs.....5 %
2000 " .....7½ %
5000 " .....10 %

Horse and Mule Shoes.
Prices subject to Change without Notice.
Shoenberger & Co., Juniata Iron Works.

Horse, from store in New York	per keg,	$5·65
Mule, " "	"	6·65
Horse, f. o. b. in Pittsburg	"	5·25
Mule, " "	"	6·25

Deliveries in Philadelphia and Baltimore, at New York price.
Shipments from Pittsburg can now be made at very low rates of freight to all leading points.
The above are Cash Prices, but if payment is received within ten days from date of invoice, a discount of two per cent. will be allowed.

Burden & Sons.

Horse, from store	per keg, net,	$5·85
Mule, "	" "	6·85

Axe Handles.
36 Inch.
Made from Best Selected Hickory.

Per doz.	$3·00	2·25	1·65	1·35	0·90
	Extra	No. 1	No. 2	No. 2 N	No. 3

Discount, per cent.

Factory shipments delivered at special prices in Cairo, Louisville and Nashville, whence low freights can be secured to all Southern points.

Elephant Edge Tools.

Axes, all patterns, medium.....per doz., $11·50
Hatchets and Boys' Axes.....dis. 25 %
Broad Hatchets, Broad Axes and Adzes.....20 %

H. T. Miller's Hatchets, &c.

Hatchets and Boys' Axes.....dis. 25 %
Bench and Broad Axes.....25&5 %

Ten Eyck Grub Hoes.

	No. 1	No. 2	No. 3
Round Eye	$13·00	14·00	15·00
Oval Eye	14·00	15·00	16·00

Discount 25 per cent.

Challenge Augers and Bits.
Discount, 40 and 10 per cent.

Mace's Patent Solid Spur Auger Bits.

$3·50	3·00	3·00	3·25	3·25	3·50	3·50	4·00	
3	4	5	6	7	8	9	10	
$4·25	4·50	4·75	5·00	5·50	6·00	7·50	9·00	₱ doz.
11	12	13	14	15	16	18	20	16ths.

Assortments in sets of 24 qrs.....per set, $3·50

4	5	6	7	8	9	10	11	12-16ths.
1	1	2	1	2	1	2	1	1

Assortm'ts in sets of 32½ qrs. 1 each, 4 to 16-16. $4·50
Discount, 15 per cent.

Brad Awl and Tool Sets.

No. 42, R. Blair's, 10 Awls, Apple-tree..₱ doz. $12·50
No. 43, " 20 Tools, " " 10·50
Discount, 30 and 10 per cent.

Self-Feeding Blacksmiths' Drill.

Length, 33 inches. Weight, 45 lbs. Each, $7·50
Discount, 10 per cent.

Stubs' Taper Saw Files.

Following sizes in stock, at $8·50 to £, gold.

3	3½	4	4½ inch.
$1·22	1·33	1·50	1·81, gold, per dozen.

Spoke Shaves.

Discount, 30 and 10 per cent.

The Original Union Bolts.

Foot, Chain and Lock Bolts.
Discount, 40 per cent.

Brighton Coffee Mills.

No. 1, Iron Hopper, box 6x3¾ in.....per doz., $4·00
No. 2, Britannia Hopper, box 6½x4 in. " 7·50
Discount, 15 per cent.

Always Cool Stove Lid Lifters.—With Ventilated Handle.

Per gross.....$12·00
Discount, 10 per cent.

German Halter Chains.

4½ feet, Bright Chains.—Gold.

No.....	3-0	2-0	0	1	2	3	4	5
	$3·80	3·35	2·90	2·50	2·35	2·25	2·15	2·10

Discount, per cent., gold.

McCaffrey & Bro., Philadelphia, have issued a neat and attractive Catalogue illustrating the various cuts of their Files and Rasps. With one exception, we believe, it is the only book of the kind published in the United States. It is prefaced by an illustration of their works on the cover, and contains a price list of the different cuts of the goods made by them. The firm was established in January, 1863, and are firm believers that the old style of hand-cut Files and Rasps cannot be superseded. They warrant all their goods first-class, of uniform temper, and hand-cut and made from American Steel. In Horse Rasps they claim a specialty. It will be seen from their advertisement that a copy of the book will be furnished on application. The trade on the Pacific Coast can be supplied by their agents, N. S. Arnold & Co. 312 California street, San Francisco, Cal.

On the 7th page will be found the advertisement of the Osborn Mfg. Co., 79 Bleecker street, manufacturers of Bright Metal Bird Cages. This company are proprietors of Osborn & Drayton's improvements, contained in twelve different patents. Their line of goods, which is being constantly increased by the addition of new and beautiful designs, is worthy the attention of the trade.

We call attention to the advertisement on page 9, of John Hartman, proprietor of the Philadelphia Nickel Plating Works, whose platings appear on a good many goods exhibited at the Franklin Institute, Philadelphia, such as Shannon's Locks, Rue's Little Giant Injector, Howe's Scales, the Sunnyside Stove, and Hillebrand's as well as Star Lock Works. These platings and gildings invariably show a superior finish and brilliancy.

The Looms manufactured by Thomas Wood, Philadelphia, in full operation at the Franklin Institute there, form a special center of attraction.

The agency of the Suez Canal has been given to Messrs. Merchant & Co., Philadelphia, in view of the Centennial Exhibition.

C. W. Packer's Ice Cream Freezers have been awarded the first premium at the Cincinnati Industrial Exposition, October, of the current year.

BRITISH IRON MARKET.

(*Specially reported by cable for The Iron Age.*)

Wednesday, Oct. 28, 1874.

Scotch Pig.—Since last report the market has been depressed, but has rallied again, and prices are now firm. The following are makers' quotations:

Coltness No. 1	105/
Gartsherrie No. 1	102/6
Glengarnock No. 1	96/
Eglinton No. 1	87/

Manufactured Iron.—The market is dull, with small demand and little business, and prices are weaker, although nominally unchanged. We quote Best Staffordshire Bars, £10. 5/ to £11.

Rails.—There is a fair amount of business doing, although prices are weak. We quote Welsh £7. @ £7. 10/.

IRON.

American Pig.—The market for American Iron still lags, and prices are irregular and declining; $28 is now about the top figure for No. 1, though in a few instances $29 is still obtained, but we have heard of sales as low as $27. The Allentown Company are very firm, and we have authentic information that $28 cash was by them refused to-day for 1000 tons. It is very difficult to give fixed quotations for any particular brand, as every transaction appears to be arranged on its own merits; prompt cash, credit of buyer, or necessities of seller, all entering into the final arrangement of the trade. The sales are light, and we only hear of 500 tons Thomas, 250 tons Crane, and 100 tons Lehigh Valley, all on private terms. We quote No. 1, $27 @ $29; No. 2, $26 @ $27; and Forge, $23 @ $25.

Scotch Pig.—Late arrivals by steamer have included about 700 tons of Scotch, but it had all been sold previous to arrival, and the market is therefore kept bare of supplies. Owing to the scarcity, $37 is readily obtained for Eglinton, $39 for Glengarnock and $40 @ $42 for Coltness, though very little trade is doing in any description. The market is entirely bare of Gartsherrie and Carnbroe. We hear of sales during the week of 400 tons Eglinton, 100 tons Glengarnock and 100 tons Coltness, all to arrive, at private prices.

Bar Iron.—The nominal market price for Refined Bar Iron is still 3c., and as far as Eastern makers are concerned there would have been no difficulty in maintaining this figure had it not been for the raiding of certain Pittsburg mills, who have again commenced cutting prices. This course has had the tendency to weaken the market, while it has not swelled the sales of the Western mills, as buyers have become very easily alarmed and will only buy what they are forced to. There is no doubt Philadelphia and Eastern Pennsylvania mills will now lower their prices to meet the competition, as they have the protection of the Western freight in their favor. It is very unfortunate that this fresh weakness should have developed itself, as through the curtailment of production the Eastern market was gradually assuming a tone that bade fair to develop into activity as the season advanced. It will now take several weeks to show how far the demoralization extends.

Rails.—The market generally continues quiet and without new features of interest. A sale has lately taken place of 4000 tons American Rails, but the particulars are withheld from the public. We quote Welsh at $48 @ $50, gold, and American $55, currency.

Old Rails.—Very little, if anything, has been done in Old Rails, and values are nominally unchanged. We quote at about $30 for Ts.

Scrap.—We hear of a sale of 200 tons, deliverable at New Haven, said to have been at $34, cash on delivery, but outside of this the market is extremely dull, and a reliable quotation impossible to obtain.

METALS.

Copper.—Quite extensive transactions have taken place since we last reported, the major portion thereof to-day. The cash sales amounted to 200,000 pounds at 22⅛c., and the futures to 250,000 pounds, December to March, inclusive, at 23c., and to-day to 1,500,000 at the same figure, December to April, inclusive. Not much is now to be had at 23c., similar delivery. The large purchases made to-day were for the covering of cartridge manufacturers' contracts. Great steadiness prevails at the close, but there is no excitement. We may pronounce the Copper situation a sound one, business having of late largely increased on the hands of Brass manufacturers. The closing quotations are 22⅜c., cash, for Lake, and 23c. for futures. Baltimore may be quoted 22c. @ 22¼c., nominally; it is scarce for the moment. London, on the 23d inst., was reported by cable £82 for Chili Bars and £91 for Best Selected. This week the market there advanced to £82. 10/ for Chili Bars. London accounts by mail, received this week, already foreshadowed the decline which took place in the meantime, brought about, as we presumed in our last report, by the then expected and since effected rise of 1 per cent. in the discount rate. Charter reports from Valparaiso by cable were also delayed by the Argentine revolution, and these circumstances combined caused the temporary reaction on the other side, from which they seem to be gradually recovering. Manufactures of Copper remain well supported as follows: New Sheathing, 28c. for over 12 oz.; Bolts and Braziers, 30c.; and Nails, 37c. @ 38c.; Bronze and Yellow Metal Sheathing, 21c. @ 21½c.; Yellow Metal Bolts, 28c.; and Yellow Metal Sheathing Nails, 21c.

Tin.—This metal continues to be a disappointment to importers and holders of it, both in Europe and this country. For some time past it has lacked its wonted buoyancy, on this coast particularly. Whether it is not as extensively used any more, or whether people in the trade are afraid to hold it in quantities much beyond immediate requirements, is a question not easily solved; at all events, it has been given a cold shoulder, and the statistical position in Europe, which determines its value more than anything else, has been contrary to a sound recovery, despite the comparatively low figure to which it has been depressed during the past ten or twelve months. There is little satisfaction in reporting the market as we proceed, business having again been a languid one, without any dealings of note in either "spot" or "futures." We quote in gold as follows: Straits, 21½c.; English Refined, 21¼c.; Lamb and Flagg, 21c.; and Banca, 25c. There are no later cable quotations from Europe, while at Singapore it was quoted $24 per picul yesterday, and improved to $24·50 to-day. Tin plates have been dealt in, in a jobbing way, to the extent of from 500 to 1000 boxes merely, during the week, and are quotable as follows: I. C. Charcoal, $9·50 @ $9·75, gold, per box; I. C. Coke, $7·62½ @ $7·75; Coke Terne, $6·87½ @ $7; and Charcoal Terne, $8·50 @ $8·75, all gold.

Lead.—While the European advance, according to cables to hand this week, seems to proceed unchecked, we have remained quiet here. The latest cable despatches from Germany again raise limits ¼c., gold, and Foreign is not easily obtained now at 6¾c., gold, here. Toward the close of last week 280 tons Selby (California) sold at 6¼c., gold, on the dock, since when dullness has prevailed unbroken, the asking price for domestic from store being 6·35c., gold, which nobody seems to feel inclined to pay. The government has done nothing beyond the small sale of 25 tons, alluded to some time ago as having been effected at 6·35c., gold. The brisk season for Lead having passed, not much interest is manifested in the article by the trade at large, the European buoyancy having no practical bearing upon our market, except so far as Foreign for drawback is concerned. Manufactures are unaltered and well sustained at 8¾c., less 10 per cent. for Bar, Pipe and Sheet.

Spelter and Zinc.—Of domestic Spelter some 40 tons were taken at 6⅝c., currency, and the price now firmly demanded is 6¾c., currency. Foreign, on the other hand, is worth all the way from 6¾c. to 7c., gold, and the disproportion in value between Domestic and Foreign is thus as glaring as ever, nor is it easily explained. Our own domestic article is either not worth as much as Silesian, by a great deal, or the producers part with it below its intrinsic value; thus of Foreign 25 tons W. H., Silesian sold at 7c., gold, and 25 tons C. G. H at 6·82½c., gold. The mail from Germany brings accounts from Breslau to the 5th instant, when P. H., December delivery, was selling at 7⅝ thalers, and W. H., November and December delivery, 7⅝. A cable dispatch from London advises another improvement of five shillings per ton. It remains to be seen whether, under the stimulus of these advices, the domestic Spelter can be made to move off in larger quantities at improved rates, now that the Brass manufacturers seem to be getting busier. There is no change in Sheet Zinc, which remains quite scarce on the spot, and readily commands from 8¾c. @ 8⅞c., gold, Mosselman included.

Antimony.—Since London advanced to £49 it has remained there steadily, according to cablegrams this week. Some 100 casks have arrived during the week in lots direct to various importing dealers, and the market closes with firmness at 11¾c. @ 12c., gold.

OLD METALS, PAPER STOCK, &c.

The sales of Old Metals have been very light the past week, and dealers find it an impossibility to dispose of any considerable quantity. Old Lead and Copper, however, are in good demand at steady rates. The market for Rags, Paper Stock &c., still continues very dull in consequence of the paper mills only running on half time, and prices have somewhat declined. We quote the following as the current purchasing rates:

Old Metals.—Copper, 16c. @ 17c. per lb.; Yellow Metal, 11c.; Brass, 10c. @ 12c.; Composition, heavy, 13c. @ 14c.; Lead, solid, 5c.; Tea Lead, 4c.; Zinc, 4½c. @ 5c.; Pewter, No. 1, 19c.; do., No. 2, 8c. @ 12c.; Spelter, 5c. @ 5½c., Wrought Iron, 1¼c.; Sheet do., ½c.; Cast, do., ½c. @ ¾c.; Machinery, do., ¾c.

Rags, &c.—Canvas, Linen, 5c. @ 5½c.; do. Cotton, No. 1, 6c. @ 6¼c.; No. 2, 2½c.; White, No. 1, 6c.; No. 2, 4c.; Colored, do., 2c. @ 2½c.; Mixed, Woolen, 2c. @ 3c.; Soft, do., 4½c. @ 5c.; Gunny Bagging, 1c.; Jute Butts, 1¾c. @ 2c.; Kentucky Bagging, 3c.; Book Stock, 3c.; Waste Paper and Scraps, 1½c.; Kentucky Bale Rope, 4c.; Oakum Junk, No. 1, 4½ @ 5c.; do. No. 2, 3c.; Tarred Shaking, 1c. @ 1¼c.; Grass Rope, 3c. @ 3¼

IMPORTATIONS.

Of Hardware, Iron, Steel and Metals into the Port of New York, for the week ending October 27, 1874:

Hardware.

Anderson, Merchant & Co.
Files, cks., 19
Boker Hermann & Co.
Mdse. pkgs., 13
Cases, 1
Beam & Murray,
Mdse. pkgs., 5
Casks, 12
Spades, bdls., 12
Chains, cks., 10
Drexel, Morgan & Co.
Cases, 1
Dickinson Henry,
Casks, 2
Dickerson H. & Co.
Casks, 3
Degraw, Aymar & Co.
Chains, 11
Frith Edward,
Anvils, 135
Fuller Bros.
Anvils, 130
Mdse. pkgs., 34
Field A. & Co.
Mdse. pkgs., 9
Hildick A. H.
Mdse. pkgs., 5
Hilger E. & Sons,
Mdse. pkgs., 15
Hopkins E. T.
Anvils, 52
Jenks, Jr., Joseph,
Casks, 2
Laughland & Co.
Wire, cks., 3
Wire, bales, 3
Merchants' Dispatch Co.
Guns, cs., 2
Mason John W. & Co.
Wire rope, coils, 9
Naylor & Co.
Wire rods, coils, 2842
Neuss & Hesslein,
Cases, 1
Phelps, Bloom & Brown,
Casks, 2
Russell & Erwin Mfg. Co.
Files, cks., 2
Stewart A. T. & Co.
Cases, 5
Spies, Kissam & Co.
Mdse. pkgs., 9
Schoverling & Daly,
Mdse. pkgs., 3
Tillotson L. G. & Co.
Gal. wire, lots, 700
Wire, lots, 287
Van Wart & McCoy,
Cases, 3
Ward A.
Mdse. pkgs., 4
Order.
Casks, 2

Iron.

Grace W. R. & Co.
Railroad switches, tons, 17
Knight Wm. & Co.
Boxes, 100
Laughland & Co.
Hay bands, bdls., 800
Leaycraft & Co.
Scrap, pkgs., 168
Naylor & Co.
Bars, 12,967
Rails, 606
Phelps, Dodge & Co.
Sheet, pkgs., 2250
Order.
Sheet, pkgs., 966
Cases, 41
Railway bars, 1834
Sheet, bdls., 325
Scrap, tons, 90
Rails, 146

Steel.

Drexel, Morgan & Co.
Bars, 347
Lang W. Bailey & Co.
Bars, 27
Sanderson Geo. & Co.
Bundles, 105
Casks, 10
Vose, Dinsmore & Co.
Wire, bdls., 10
Woodford W. O.
Packages, 70
West, Bradley & Co.
Wire, bdls., 248
Order.
Bundles, 579
Kilogs., 7714
Casks, 3
Cases, 4
Bars, 3

Metals.

Bruce & Cook,
Antimony, cks., 17
Tin plates, bxs., 520
Byrne Joseph & Co.
Tin, slabs, 242
Tin plates, bxs., 238
Grund F. & Cerero,
Lead, bars, 1764
Hart Lucius & Co.
Tin, slabs, 50
Tin ingots, 300
Leaycraft & Co.
Scrap, copper, pkgs., 12
Scrap, brass, pkgs, 16
Scrap, lead, pgs., 2
Noel & Saurel,
Tin sheets, cs., 2
Naylor & Co.
Tin plates, bxs, 986
Phelps, Dodge & Co.
Antimony, cks., 25
Tin plates, bxs., 14,185
Tin ingots, 1765
Mdse. pkgs., 1005
Reyner Bros. & Co.
Copper, bxs., 13
Smith J. Lee & Co.
Zinc, bbls., 50
Windmuller L. & Roelker
Sheet zinc, cks., 80
Order.
Antimony, cks., 33
Lead, pcs., 800
Tin plates, bxs., 5774
Lead, pigs, 1795
Tin, ingots, 480

COAL.

We have no definite change to report in the Coal market this week, and dealers say there will be no change of consequence until the meeting of the combination in March, when prices for the next year will be decided upon. Prices, however, remain firm at the advance noted last week. The usual monthly sale of Scranton Coal took place to-day (Wednesday) at the rooms of the Delaware, Lackawanna and Western Railroad Company, at William street and Exchange place. The attendance was large, and the bidding somewhat brisk. Sixty-two thousand tons were disposed of. Mr. Draper was auctioneer. The following table shows a comparison of to-day's prices with those of last month:

	September.	October.
Steamboat.....	$5·17½ @ 5·30	$5·47½ @ 5·50
Grate.....	5·22½ @ 5·27½	5·22½ @ 5·37½
Egg.....	5·35 @ —	5·67½ @ 5·70
Stove.....	6·0½ @ 6·05	6·15 @ 6·20
Chestnut.....	4·95 @ 5·00	5·00 @ —

The market for Bituminous Coal still continues very quiet, and prices remain unchanged. Our quotations are as follows: Cumberland, $6·25 @ $6·50; American Gas, $7 @ $7·75; West Virginia, $7·40 @ $7·65; Pennsylvania and Westmoreland, $7·50 @ $7·65; James River Steam, $6·25 @ $6·50; American Cannel, $13.

The demand for Foreign is limited, and prices are nominal. The quotations are: Liverpool House Cannel, $17 @ $18; Liverpool Gas, $9·50 @ $12; Newcastle Gas, $8; Scotch, $8.

The quantity of Coal sent from the Schuylkill region last week by rail was 130,184 tons; by canal, 22,527—for the week, 152,711 tons, against 117,056 for the corresponding week last year. Increase, 35,655.

The supply sent from all the regions for the week was 490,932 tons Anthracite, and 76,534 Bituminous. For the week 567,666 tons, against 540,501 for the corresponding week last year. Increase, 26,965 tons.

The whole supply sent from all the regions so far this year is 17,583,524 tons, against 18,768 259 tons to same period last year. Decrease so far this year 1,214,735 tons. The decrease in Anthracite is 1,254,743 tons.

The total amount of coal shipped by the Lehigh and Wilkesbarre Coal Company for the week ending October 16, 1874, and for the year, is as follows:

	Week	Total.
Wilkesbarre Region.....	35,775	1,022,496
Lehigh	13,349	449,667
Audenreid.....	12,340	378,529
Total.....	61,464	1,850,692

The Coal transported over the Cumberland Branch Railroad during the week ending October 24, 1874, amounted to 5057 tons, as against 5888 tons shipped in the corresponding period of last year, showing a decrease of 831 tons. Over the Cumberland and Pennsylvania Railroad, for the same period, the shipments were 43,360 tons, against 58,362 tons shipped in 1873, a decrease of 15,002 tons.

PHILADELPHIA.

Philadelphia, Oct. 27th, 1874.

The situation of the market continues very much the same as at our last report, with little or no demand for Pig Metal, a fair business in Bars and Plates, and an active and increasing inquiry for Rails. The anomalous condition thus reported fairly reflects the actual situation of the trade throughout the country, and is, in some hands, looked upon as indicating the beginning of the long looked for improvement. As a business fact, the transactions in Rails are undoubtedly greater within the two weeks past than for months. While prices are low these purchases are quite as certainly exhausting the supply of made Rails, and furnishing orders for Rail mills, which, if continued, as is to be expected, must necessarily affect prices of Pig Metal, or, at least, furnish a demand for consumption. At the same time it is to be noted that the railroad companies purchasing Iron will also soon be compelled to contract for additional rolling stock, now much needed, and which will give a better market for Bar, Plate and Tank Irons. There are also some additional features of interest in the market relative to Steel Rails, one or two of the Eastern roads being in negotiation for a considerable quantity aggregating some 40,000 tons, which, with previous orders, will keep the Steel works and Rail mills supplying them busy for some time to come. At present prices of Steel Rail, it is evident that the American Bessemer Rail can now be laid down at tide water equally as cheap as English Bessemer, and generally fully equal if not superior in quality to the latter. This has undoubtedly come about from the greater attention paid to the production of Bessemer Pig in the United States, as well as, of course, from the reduction in price of all Pig Metal. All things considered, there is more profit in the manufacture of Steel Rails at present prices than of Iron Rails, and we may therefore naturally expect for the future an extension of the Bessemer product in this country. Although there is but slight encouragement in the trade to be noted at present, a better feeling prevails, for the reasons stated, than was the case a fortnight since. Prices are, however, nominally the same, and afford but a slight margin of profit; so slight indeed that any interference with the tariff, as foreshadowed for the coming session of Congress, would practically close up every branch of the industry. The following prices as quoted in this market are continued:

Pig Iron.—No. 1 Foundry, $29; No. 2, $26; Gray Forge, $25; White and Mottled, $18 to $22. Charcoal Pig, $37 to $38.

Bars—3c. per lb.

Rails—$55 to $60, as to make and section, at works.

Old Rails—$30 to $31·50, and abundant.

Scrap—$31 to $32 for No. 1 Wrought.

The sales of Pig Metal include some 6000 tons, principally No. 2 and Forge, at quotations, Forge being relatively scarce; also 100 tons Charcoal Pig at $37, here. Old Rails at $30, spot, and about 1000 tons ranging from $30 to $31·50. In Rails there are sales to note of 4000 tons from Western mills, on private terms, long time; and contracts closed for 20,000 tons with a near-by mill, for early delivery, at about quotations. In Steel Rails negotiations are pending for 38,000 to 40,000 tons for a State road, with also conditions of early delivery. Of Scrap we note sales of 250 to 300 tons at $31 to $32, here, for best selections of No. 1 Wrought.

PITTSBURGH.

Pittsburgh, Oct. 25, 1874.

Pig Iron.—Trade in this important staple continues very much restricted, as the demand is confined entirely to supplying the immediate necessities of consumers, although in the aggregate there is a very fair business. That the consumption after all is not much behind what it usually is at this season of the year, is evident from the fact that the mills are, with one or two exceptions, all in operation, many of them working up to their full capacity, and furthermore, they have been running full ever since they started up in August. In former years the mills generally carried from thirty to ninety days' stock ahead, but this year they are pursuing an entirely different policy; the majority of them are now buying from week to week, determined to carry just as little stock as they can possibly help, and the fact that the general tone and spirit of the market is in buyer's favor stimulates this course of action, as they feel that there is no probability of an advance, but, on the other hand, many of them are holding off in anticipation of a further decline. The fact is the great proportion of the sales during the past two weeks show a decline of from 50c. to $1 per ton, and that too in small lots, and it is fair to infer that for a round lot, say of one or two thousand tons, still greater concessions would be made. Quotations may be fairly given at $25·50 to $26, 4 mos., or $25 cash. Charcoal irons appear to be more depressed than any other kind, because the stock is unusually heavy, and the demand very light. There has been a gradual accumulation for a couple of years or more past, and the consequence is a heavy shrinkage in prices. Your correspondent is cognizant of offers being made here now to sell Charcoal Iron at $32 to $33 per ton that were bringing $50 and upward a couple years since. Foundry irons of all kinds continue very dull, and prices are lower than they have been since before the war; the most of the sales recently have been within the range of $26 @ $28, for Nos. 1 and 2, 4 mos. It is but proper to state, however, that notwithstanding the outlook is anything but encouraging, there are some producers who have confidence in the future, as they are unwilling to sell at present rates; while, on the other hand, there are others anxious to realize now, who refused to do so in the summer, when prices were from $1 to $1·50 higher.

Manufactured Iron.—There is but little to report as regards the market for finished irons that is really new or important. While trade is not as active as our manufacturers generally counted upon, it is perhaps about all that can reasonably be expected, and notwithstanding orders are not coming forward as freely as they did in the early part of the season, the mills all appear to be busy, the best evidence of which is that they are all running with one or two exceptions. It is true prices are lower, but so is the cost of the raw material and labor, and there is reason to believe that 2½c., the present rate, usual time, will yield the manufacturer about the same margin for profit that 2¾c. did a month or six weeks ago.

Nails.—The Nail trade continues very dull, although this is not unusual at this particular time, and, furthermore, no improvement can reasonably be expected until January, perhaps February, when jobbers commence to send in their orders for spring and summer trade. Some of the factories are still in operation, but a general suspension soon is probable, as makers do not want to accumulate stock, and the demand is not sufficient to absorb the production. Prices remain unchanged: $3·35, 60 days, usual discount of two per cent. for cash, but no rebate, as heretofore, on 100 keg lots and upward.

Steel.—There is a fair degree of activity, as the mills are all in operation, and some of them report that they are still sold ahead of their production; but there are no regular rates, and, as in iron, "cutting" has been indulged in freely of late, and the consequence is most, if not all, of the firms are selling independent of each other in this respect, each one having their own rates. The result, as might be expected, is that prices have been forced down lower than there was any necessity for, and the margin for profit is very small.

Scrap Iron.—There is no improvement to note in the Scrap Iron trade, and while dealers are hopeful, the indications are not favorable for an early change for the better. There is still some inquiry for Steel, but the demand is for small lots to meet immediate requirements. Dealers say there is so little doing that there are no regular rates.

Coke.—There has been rather more inquiry for this important staple recently, notwithstanding the continued depression in Pig Iron, and some new contracts have been made recently, but prices are lower. Connellsville is quotable at $2·75 per ton, free on cars in Pittsburgh.

The Pittsburgh *Commercial*, of the 24th inst., says: We can note no change in the market for Pig Metal since our last report. There has been considerable inquiry this week, but sales are still limited to small lots for immediate use. The rolling mills are all in operation and using up a good deal of iron, but the supply is fully equal to the demand, and many persons expect even lower prices than now prevail. We are reported the following sales:

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR ORE.

200 tons gray forge, red short	$26·00—5 mos.
200 tons white and mottled	private terms.
120 tons gray forge	25·50—4 mos.
100 tons medium gray, neutral	25·50—4 mos.
100 tons mottled	24·00—4 mos.
100 tons gray forge, neutral	25·00—cash.
100 tons gray forge	25·50—4 mos.
100 tons gray forge	25·00—60 d'ys
75 tons No. 2 foundry	27·50—4 mos.
50 tons No. 1 foundry	27·00—4 mos.
40 tons mottled	24·00—5 mos.
30 tons No. 2 foundry	26·50—4 mos.
30 tons No. 1 foundry	27·00—4 mos.
20 tons No. 3 foundry	26·00—4 mos.
10 tons No. 2 foundry	32·00—4 mos.

CONNELLSVILLE COKE.

100 tons gray forge	$26·00—4 mos.
20 tons No. 1 foundry	27·00—4 mos.
10 tons No. 1 foundry	27·50—4 mos.

CHARCOAL.

200 tons No. 1 Lake Superior	$33·00—4 mos.
50 tons No. 1 Lake Superior	35·00—4 mos.
30 tons No. 1 Tennessee	32·00—4 mos.
30 tons No. 1 Pennsylvania	35·00—4 mos.
10 tons No. 6 Lake Superior	39·00—4 mos.
10 tons No. 2 Hanging Rock	34·00—4 mos.

CLEVELAND.

Messrs. Read & Dickey, Iron Brokers, under date of Oct. 26, write us as follows:

Pig Iron.—No new features of importance to report. The general tone of the market remains substantially as indicated in our last. The pressure to sell has been somewhat relieved, owing to the sale of some considerable lots for speculative purchase, but as they changed hands at much below quoted rates, are no fair indication of the market price. Gray Forge is becoming more abundant as the wants of the mills are becoming lighter, and we should not be surprised to see prices for that grade even lower than at present before the close of the year. The demand for Foundry grades is very light and prices are weak. Bessemer metals alone hold their price, and show some signs of improved activity. We hear of one sale of a very choice brand at a considerable advance over quotations. In addition to other favorable signs for makers of Steel Rails, we learn that English makers are shutting down their works, tired of the ruinously low rates at which they have had to sell in our market, and this fact must soon be favorably felt by our home manufacturers. We reproduce quotations of last week:

CHARCOAL PIG IRON FROM L. S. ORE.

Nos. 1 and 2	$32·00 @ 33·00—4 m.
No. 3	34·00—4 m.
No. 4	35·00—4 m.
No. 5	36·00—4 m.
No. 6 (scarce)	38·00—4 m.
Bessemer Metal, Charcoal	32·00—4 m.
Bessemer Metal, Bituminous	28·00—4 m.

BITUMINOUS PIG IRON FROM L. S. ORE.

No. 1 Foundry	$28·00—4 m.
No. 2 Foundry	27·00—4 m.
No. 1 Gray Forge Open Red Short	26·00—4 m.
Close " or Neutral	25·00—4 m.
White and Mottled	23·50—4 m.

FOUNDRY IRONS FROM BLACK BAND AND NATIVE ORES.

Massillon No. 1	$33·00—4 m.
Massillon No. 2	31·00—4 m.
"New Gartsherrie" No. 2	33·00—4 m.
Muck Bar	$44·00—60 days.

Manufactured Iron.—From all points we

hear of increased dullness in nearly all grades of Manufactured Iron, and this market seems not to be an exception. The mills are fast clearing off their order books, and becoming anxious for new orders, a commodity at present difficult to find in any quantity at any price. With a returning scarcity of orders the mills are resorting to the old practice of cutting prices, but as yet without any advantage gained other than that questionable one of making the real bottom very hard to discover. Some makers are again agitating the policy of a general shutting down of the works for sixty or ninety days, and such, no doubt, would be the proper course to pursue, judging from the makers' standpoint, but we are doubtful if it could be carried out, as there are some insurmountable difficulties in the way, aside from the humanitarian view of throwing so many hands idle just at the approach of winter. We therefore think it not improbable that Manufactured Iron will reach lower prices before January 1st next than at any time the present year. Some specialties, as Hoop Iron and Wire, are in good demand and fairly maintain their prices.

SHEET IRON continues in fair demand, although prices are disposed to be somewhat weaker; but we look for no change of importance in Sheet Iron quotations for some time yet.

NAILS continue dull, and the tendency among makers is to shade prices somewhat for round lots, although nominally the card rates are adhered to. Quotations from store here are unchanged as follows:

	60 days.
Bar, Band and Hoop Iron	2 8-10
Sheet Iron, No. 24	4 8-10
Nails, 10d. to 60d	$3·50
Boat Spikes, ⅜ and larger	4·20

BALTIMORE.

Messrs. WYETH & BROTHER, Iron and Steel merchants, South Charles and Lombard streets, report us the following prices under date of Oct. 27: This market still rules comparatively quiet, with no quotable change in list to note, and we report same unchanged but weak.

AMERICAN REFINED BAR IRON.

1 to 6 wide by ¾ to 1 thick.. } 1 to 4½ wide by 1½ to 2 thick }	2·9 to 3·1 cts. per lb.
Round and square, ordinary sizes, from ¾ to 2 inclusive	2 9-10 to 3 1-10c. "
Hoop Iron, 1½ wide and upward	4½ to 5c. "
Band Iron, from 1¾ to 4 in. wide	4 to 4½c. "
Horse Shoe Iron ¾ to 1 wide by ⅜ to ½ thick	4½ to 5c. "
Norway Nail Rods	7¾ to 8¼c. "
Black Diamond Cast Steel, Flats, Squares and Octagon, ordinary sizes	16½c. "
Machinery Steel	11½c. "
Cast Spring Steel	11c. "
Homogeneous Steel Plate	13c. "
Perkins' Horse Shoes, per keg of 100 lbs	$5·87½
" Mule Shoes " "	6·87½

Common Horse Nails, from 14c. to 18c. per pound.	10	9	8	7	6	
Putnam Horse Nails	23	24	25	26	28c.	per lb.
	10	9	8	7	6	
Globe Horse Nails	23	24	25	26	28c.	per lb.

R. R. Spikes.....5½ by 9-16 at 3¾c to 4c. per lb.

Messrs. HOFFMAN, THOMPSON & CO., Iron commission merchants, 23 and 25 South Frederick street, under date of Oct. 27, report the Pig Iron market as follows: The market is without activity, and sales are confined to small lots. We quote:

Baltimore Charcoal Pig Iron	$36·00 @ 40·00
Virginia " "	35·00 @ 39·00
Alabama " "	32·00 @ 35·00
Anthracite No. 1	29·00 @ 30·00
" No. 2	26·00 @ 28·00
" No. 3	25·00 @ 26·00
White and Mottled	18·00 @ 20·00

CINCINNATI.

Messrs. L. R. HULL & CO., under date of Oct. 26th, write us as follows: Market less firm for No. 2 Foundry Iron. Some sales of round lots have been made during the week on private terms. Choice grades of Foundry Iron are generally held at the furnaces, and not pressed at reduced prices. Car Wheel Irons are dull, and some brands are offered at lower prices. Forge Irons in moderate demand at low figures. We revise our quotations:

HOT BLAST CHARCOAL.

Hanging Rock No. 1	₱ ton	$31·00 @ 32·00—4 mos.
" " No. 2		28·00 @ 29·00—4 mos.
" " Forge		26·00 @ 27·00—4 mos.
Tennessee No. 1		30·00 @ 31·00—4 mos.
" Forge		26·00 @ 27·00—4 mos.
Alabama No. 1		30·00 @ 31·00—4 mos.
Missouri No. 1		31·00 @ 32·00—4 mos.
" No. 2		29·00 @ 30·00—4 mos.

HOT BLAST STONE COAL.

Missouri No. 1	₱ ton	$31·00 @ 32·00—4 mos.
" Forge		26·00 @ 27·00—4 mos.
Ohio No. 1		28·00 @ 29·00—4 mos.
" Forge		26·00 @ 27·00—4 mos.
Scotch Pig, No. 1		

COLD BLAST CHARCOAL.

Hanging Rock Car Wheel	₱ tn.	$40·00 @ 50·00—4 mos.
Missouri " "		45·00 @ 48·00—4 mos.
Kentucky " "		43·00 @ 48·00—4 mos.
Tennessee " "		40·00 @ 48·00—4 mos.
Georgia " "		40·00 @ 45·00—4 mos.
Alabama " "		40·00 @ 45·00—4 mos.
Machinery and Forge		40·00 @ 45·00—4 mos
Blooms		75·00 @ 90·00—4 mos.

BOSTON.

BOSTON, Oct. 24.—*Pig* has had a small trifling business, with fully 50c. a ton better prices realized upon No. 2. There is a steady quotation of the market at $31 to $32 per ton for No. 1 on the leading popular brands, and $29 to $30 for No. 2, and at these values sales are made. But, as noted of this market five or six weeks since, buyers have lost sight of reputations, and are seeking prices on a guarantee of quality rather than brands at a price. The fact that Fisk's Wharf holds good Iron that can be bought in these warehouses as cheaply as the companies quote from New York is generally known and thoroughly gossiped. The fact is, Boston has all the Pig Iron it needs, and has had for some time, and a month ago, when dealers had gotten the market into a steady and somewhat profitable condition, with foundrymen willing to take their weekly five and ten ton lots at the quotations, we had precipitated upon us nearly 1800 tons of fresh stock. That discourages timid holders and sends them headlong into the open market, completely demoralized, and willing to accept almost anything to unload. We quote Eglinton $38, and Coltness and Gartsherrie $46, currency—nearly nominal figures, as no sales have been made for weeks. *Bar* is a little more active in a jobbing way at 2⅜c. to 3c. for Refined. Swedish Iron is a trifle stronger, jobbing at $105 to $110, cash, gold, per ton. There has been a sharp advance abroad, equal to about $3, gold. The heavy stock here at the beginning of the year, and the fact of a slow business, made the American market the cheapest point in the world. The stock nowhere is much reduced, with very little on the way. *Steel* is quiet at 9½c. to 10c. and for machinery, with the best American tool offering at 15½c. to 16c., and English at 17c. American Cast Steel is jobbing at 10c. to 11c.; Cast Tire Steel, 10c.; German Tire Steel, 8¾c. *Metals* are generally a trifle more active, with an advance of ¼c. in Ingot Copper, and ⅛c. in domestic Pig Lead. We have a sale of 50 tons Domestic at 6½c. Tin is firmer. The Olive, from Singapore, arrived on Wednesday with 486 pigs Tin that had been sold to arrive to a dealer. We quote Ingot at 23¼c., cash, and futures 23c. Yellow Metal, 23c. *Lead* is strong. We quote Sheet and Pipe 8¾c., currency; Tin Lined Pipe, 16½c.; Bar Lead, 8¾c., less usual trade discount; Pig, 7½c. for Foreign, gold, and 6¼c., currency, for Domestic. *Spelter* is firm. American, 6¾c., currency. *Tin* is steady. Straits, 21¾c. to 22c.; Banca at 25½c., gold, 30 days; Refined English, 21¾c. to 22c., gold; Charcoal I. C., $11·25 to $12·50; Coke, $9 to $10; and Terne at $8·50 to $12·50 per box, currency.—*Com. Bulletin.*

LOUISVILLE.

Mr. GEO. H. HULL, under date of Oct. 26, writes us as follows: There has been no improvement in the demand during the last week. There is no change to note in prices, but concessions have to be made to effect sales of round lots. The usual time, 4 mos., is allowed on the quotations below:

HOT BLAST CHARCOAL.

No. 1 F'dry, from Hanging Rock Ores	$30·00 @ 33·00
" 2 " " " "	28·00 @ 29·00
" 1 Forge, " " "	26·00 @ 27·00
" 1 F'dry, from Tennessee Ores	28·00 @ 30·00
" 2 " " "	27·00 @ 28·00
" 1 Forge, " " "	26·00 @ 27·00
" 1 F'dry, from Alabama Ores	28·00 @ 30·00
" 1 " " Iron Mountain Ores	33·00 @ 34·00

HOT BLAST STONE COAL.

No. 1 F dry, from Missouri Ores	30·00 @ 33·00
" 2 " " " "	28·00 @ 29·00
" 1 Forge, " " "	28·00 @ 30·00

COLD BLAST CHARCOAL.

Car Wheel from Hanging Rock Ores	50·00 @ 54·00
" " Tennessee Ores	45·00 @ 46·00
" " Alabama Ores	48·00 @ 50·00
" " Georgia Ores	48·00 @ 50·00
" " Missouri Ores	45·00 @ 46·00
" " Kentucky	40·00 @ 50·00

FOREIGN.

FRANCE.

(Moniteur des Interets Materiels.)

PARIS, Oct. 11, 1874.—*Metals.*—The European metal markets have been devoid of excitement during the week, and show no noteworthy change. The improvement in some metals, of Copper in particular, has principally been the result of speculation; so far from stimulating legitimate trade, ventures of the kind rather operate adversely, especially in their influence on the export business from England to the Continent. We are, furthermore, from all appearances on the eve of an advance in the bank rate on the other side of the channel, likely to be brought about by some large financial dealings between London and Continental centers. *Copper.*—Transactions in this metal have been to a fair extent, both in England and on the Continent, and the London market has risen another pound sterling per ton. This latest advance seems to have been too much for some shippers to subscribe to with any degree of readiness, and as they hesitate to go on purchasing, a quiet feeling has from London spread to the leading places on the Continent. It should also be remarked that telegraphic communication between Europe and Valparaiso will not unlikely be interfered with by the Argentine civil war, the River Plate being one of the stations on the route. There is a delay now already, and as speculation in Copper largely turns upon the semi-monthly West Coast charters, an interruption in communication may be the means of paralizing the action of some large operators, and necessarily bring about dull times, and a reaction. Aside from this, a rise in the discount at London may precipitate a downward course of Copper at any time, the London Copper market being mainly supported by speculation. Copper has been in active request in our own market at the following quotations: English Tough Cake and Tile, 230 francs; do. select brands, 235; Chili Refined Ingots, 235, and Lake Superior, 235 to 240 francs the 100 kilos. Havre is inactive, and altogether under the sway of English quotations. Copper is well held at Marseilles, since the apprehensions about large European receipts of Lake Copper from America have banished. *Tin.*—The European Tin markets have been rather feebly supported, and lower prices have ruled, but toward the close a better feeling is perceptible in response to liberal deliveries to consumption in England. In Holland a general quietness has prevailed; purchasers have not been plentiful, while holders have declined to listen to anything below 56¾ guilders for Banca. In our own market Tin has formed an exception, and remained dull and weak, while other Metals were well supported. We quote Banca, deliverable here or at Havre, 260 francs, and Straits, 245. Since the Dutch sale, Banca has been offered lower at Marseilles; Straits there 245. *Lead.*—This Metal is fully sustained at London, and prices have an upward tendency. Sellers decline to sell ahead. Spanish moves on a par with English. We are higher here, and quote the different kinds 55 francs; the jobbing rate is 56 to 57. Marseilles is remarkably firm at 50¼ to 51¼ francs. *Spelter.*—The firmness frequently alluded to, which has of late characterized this Metal, is daily on the increase, and London is hardening. A fresh rise has taken place in our own midst; Silesian here and at Havre commands between 59 and 60 francs, and the jobbing rate varies between 61 and 61¼. Marseilles is steady. With few exceptions activity prevails in the *Iron* branch throughout France. There is no rise as yet, but prices are quite firm, even Pig Iron, which is a good sign. Many of our rolling mills are busy to their utmost capacity. In the Haute Marne, Wrought Iron is steady between 230 and 240. There is an increasing demand, and work is secured full up for the winter campaign. Rails are in good request, especially Steel Rails, which are steadily gaining in favor. The Steel works of France have not suffered much during the past twelve months of stagnation, not having been wholly deprived of work during the interval, any of them. Sheet Iron is in brisk demand from all quarters, and prices remain stiff. New blast furnaces are being got in readiness precipitately, and the winter campaign is full of promise. *Coal* has remained steady, an improvement being prevented by the competition which Belgian Coal is making us. A good many important changes will be brought about in the North of France by the new branch railroad lines building, and the Pas-de-Calais region will at no distant day shine forth prominently, unsurpassed as it will be in point of accessibleness by rail by any other European Coal district. In the Loire a general calm predominates.

BELGIUM.

(Le Commerce.)

BRUSSELS, Oct. 10, 1874.—*Metals.*—The revival of metal industry in Europe, and especially in the Iron branch, seems to be very nearly a general one, if we except some portions of England. The metal exchange here has been well attended, and extensive dealings have taken place; a good many foreigners were present and did business. We trust that henceforward foreign purchasers will more and more recognize the advantages which our exchange presents to them in more than one respect. Iron industry in Belgium has now fully recovered, and rates are steady. The question of Iron ties instead of wooden ones is again being mooted on our railroad lines. In Luxembourg Iron ties have done good service for many a year past, and oak timber being comparatively dear in Belgium, it seems evident that in the long run Iron will prove the cheaper material of the two. In France tarred pine timber has to some extent superseded oak ties. In Germany, we may remark, as a matter of interest, the Heberlein brake has been adopted for ten new express railway trains and fourteen locomotives. It is to be wished for that the invention may soon be introduced on our own lines. Belgium, we are sorry to say, is generally behind hand in point of innovations of the kind. *Coal* is steady despite the German competition from the Ruhr country; mixed, for furnace purposes, is worth between 17 and 18 francs; small do., 15½ to 16; mixed, for domestic use, commands 19 to 20. There is no change at Liege. In the Central districts Coal is firm, and higher than in the remaining localities.

GERMANY.

(Borsenhalle.)

HAMBURG, Oct. 9, 1874.—*Metals.*—*Copper.*—No particular change has occurred in the German markets. A fair amount of business has been transacted, and prices are firmly upheld; at Berlin good qualities English and Australian bring from 30 to 31 thalers the 50 kilos. Our own market is firm and steady. *Tin.*—Our markets have slightly declined; at Berlin Banca does not now command above 34¾ to 35, and English 32¾ to 33 thalers the 50 kilos. The metal is but indifferently well sustained here at 107 English and 108 marks Banca. *Lead.*—The German markets fully keep pace with the onward course of competing ones abroad; they are firm, with a fresh improvement. Berlin quotes 7¾ to 7⅞ thalers the 50 kilos; Stettin is 7¾ to 8 for Spanish. Here the range is between 24 and 25½ marks. *Spelter* is as firm as ever in our midst, with a sale of 1000 quintals Silesian, deliverable by rail, at 23·27½ marks. Berlin is steady at 7⅝ to 8 thalers the 50 kilos; Stettin at 8 to 8⅛. Breslau quotes as follows: P. H., 7¾ thalers; W. H., 7⅝, bid, with no sellers.

HOLLAND.

(Evers & Co.)

ROTTERDAM, Oct. 10, 1874.—*Tin.*—Since the late auction sale our market has quieted down and sold from 56·80, average at the sale, down to 56¾, thence to gradually improve again to 56½ and 56¾. Spot Billiton is wanted at 54.

EAST INDIES.

(Clark, Spence & Co.)

POINT DU GALLE (Ceylon), Sept, 16, 1874.—*Plumbago*—We scarcely hear of any transactions; there is little offering for sale, and, on the other hand, the demand is very slack. Without an advance in present quotations it would seem there is really, as has been frequently remarked, no inducement for diggers to operate. We quote, free on board with freight and Exchange at par: Lump, £17. 10/ to £18 per ton; Chips, £11 to £12; and Dust, £7 to £7. 10/, the market closing quiet. *Exchange*, 1/10½ to 1/10⅝. *Freight*, 60/. *Coal.*—Owing to advices of cargoes being on the way at a considerable reduction of freight and cost of fuel, rates for coaling steamers are somewhat easier, and must ultimately decline still more, as the present quotation, of 55/ free on board, mixed Cardiff and Newcastle, is even now scarcely tenable.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

SHEFFIELD, Eng., Oct. 13, 1874.

A LITTLE CLOUD,

at present "no bigger than a man's hand," is just beginning to be visible on the European political horizon to attentive observers of the course of Continental affairs, and is deserving of some passing notice here in consideration of the ultimate effect it may have upon the iron and allied industries of this country. "That Bismarck" is again at the bottom of the matter. He has been ill, and having recovered feels himself equal to a little more blood-and-iron work. In a word, he appears to be hatching another war—a second great campaign against France, so as to exact an enormous indemnity and crush her so utterly that she shall not be able to raise her head for a score of years henceforward. The arrest of his own ambassador, Count Arnim, is felt to be so stern a step that it could only have been justified by circumstances of the most *outre* nature, and the danger that his plotting would, or at any rate might, become prematurely known. Then, again, he is reorganizing the Landsturm, one of the reserve *corps d'armee*, and is in other respects strengthening and considerably augmenting the standing army of the Fatherland. But, just as Herr Von Bismarck—or Prince Bismarck, if you like that saponaceous title better—seems to be bringing his little projects to something approaching a climax, a low but ominous warning comes from the North—a growl from the Russian bear. The St. Petersburg autocrat views the Danish question with distrust, and does not understand how it is that ejectments are being so rigorously carried on in Schleswig and Holstein. His pious cousin of Prussia must not be suffered to absorb Denmark, for that would simply mean the annihilation of impregnable Cronstadt, the extinguishment of St. Petersburg, and the utter and absolute control of the Baltic by means of the narrow Skager Rack and the Cattegat. Therefore Russia utters a premonitory warning, and awaits the progress of events. We, in England, are not directly concerned in these quarrels, but we do feel that Prince Bismarck has shed blood enough, and we think that a firm interposition on the part of England may prevent the Prussian Chancellor from pursuing his project. We have, at any rate, in Lord Derby a foreign minister who knows whereof he speaks, and has the valuable quality of meaning what he says. If he warns Bismarck, that scheming statesmen is fully astute enough to be aware that the blow will quickly follow the words.

THE LONDON EXPLOSION.

You will, doubtless, have noticed that we have had our little gunpowder explosion in London, with what may be described as startling results. You will, of course, be fully aware that we do not seek to compete with you in "big" things, but we do think that, for London, the explosion was of a pretty effective nature. It is true that a little management might have either prevented it altogether or made it more deadly, seeing that there are spots along the line of the canal at which a thousand houses might have been levelled and half as many lives lost. An inquiry has elicited the fact that powder is carried in barges covered only with tarpaulins, so that the dwellers near the Surrey canal may be considered to have been let off lightly hitherto. As it is, three or four poor fellows have been blown to pieces, a number of houses have been blown down, and a thousand or so wofully damaged in one way or other. The people down that way are now said to be fostering a violent prejudice against impromptu fireworks. They say it is so unprofitable to be called upon to glean pieces of a man from all the roofs and streets within an area of a mile or so.

SCOTCH PIG IRON MARKET.

The Scotch pig iron market at Glasgow was hardly so regular last week as during the preceding one, consequently prices were scarcely so well upheld, and there being a much weaker shipping inquiry makers' quotations fell in the week about four or five shillings per ton. Warrants, however, were not so strongly affected, and at the termination of the week's business, on Friday evening, were currently named at a couple shillings only below the highest point previously reached. The shipping demand having been satisfied, it is not thought likely that the home requirements will be able to consume the whole of the products of the 117 furnaces now in blast, and some predict a further drop in prices. There may be, nevertheless, a fair winter inquiry for Holland and Belgium, and possibly America, so that it is within the bounds of possibility for the best brands of makers' iron to become somewhat dearer within the ensuing months. Writing on October 10th, Messrs. James Watson & Co. say: "We have to report a quieter market for Scotch pig iron this week; price of warrants has fluctuated between 86/, 88/, and back to 86/, closing this afternoon rather buyers, sellers 86/3. Shipments last week were 11,562 tons, against 11,205 tons in the corresponding week of 1873.

	Deliverable alongside No. 1.	No. 3.
G. M. B., at Glasgow	92/	82/
Gartsherrie, "	112/6	86/
Coltness, "	112/6	86/
Summerlee, "	106/	85/
Langloan, "	112/6	85/
Carnbroe, "	98/6	85/
Calder, at Port Dundas	114/	85/
Glengarnock, at Ardrossan	103/6	86/
Eglinton, "	93/	81/
Dalmellington, "	93/	81/
Shotts, at Leith	110/	86/
Kinneil, at Bo'ness	97/6	81/

TRADE MATTERS AT SHEFFIELD.

Trade does not improve, and there are not wanting numerous instances in which the lately recorded "spurt" is being succeeded by a state of positive dullness. This, as has already been stated in these columns, is in all probability owing to the termination of the season's shipments to the Baltic ports, not to mention the obvious fact that in the finished iron trade many orders are being held back in order to profit by the drop in prices at quarter-day—if any such drop takes place. On the whole, then, it may be said that both the iron and steel trades are again quiet, with not a few unfavorable exceptions in the cases of firms in both these branches of industry which are doing very little. I may supplement the statement made last week in reference to the effects of the keen home and foreign competition in the steel rail trade, by stating that by the expiry of some of the workmen's notices, about 500 of Messrs. John Brown & Company's men are thrown out of employment pending certain alterations of machinery and plant now in progress. These alterations include the putting of suitable rolls, &c., for producing ship and boiler plates, as well as sheet iron. There is a fair inquiry for both classes of plates named—the Atlas Works having long had a substantial reputation for boiler plates of ordinary and charcoal iron. So far as the production of Bessemer steel itself is concerned, there can be no question whatever that Messrs. John Brown & Company are in a position which has many points of superiority over that of most other houses in this district. They have the Carhouse and Aldwarke main collieries within a few miles of the works, and are able to obtain almost—if not, indeed, fully—all the coal the works require from thence. They also propose to erect coke ovens on the spot in order to make their own coke, and so be free from the incubus which North country coke, at 25/ per ton, lays upon their shoulders. Further than this, they have already three newly constructed blast furnaces in operation at Sheffield, and propose to build six or seven others on a site close to the collieries, so as to take every possible advantage of the many facilities afforded by the immediate proximity of a good fuel supply. Again, I believe I am correct in stating that the firm have arranged to import at least 500,000 tons of Spanish ore per annum for their own uses, some cargoes being now on their way to this locality for that purpose. These facts demonstrate very clearly that what foresight and enterprise can do has already been effected by this concern; hence the importance of the fact that they deem it advisable to withdraw in part from the rail trade. It should not, nevertheless, be supposed that the great Atlas establishment is idle, or anything approaching to it, the fact being that over 4500 men are still at work, and when the alterations of which I have just spoken are finished, that number will be augmented to over 5000.

Hematite ores are somewhat indefinitely quoted at present, several well known mine products being specially negotiated for in each particular instance. Hematite pigs of ordinary or Bessemer brands are fairly firm, the current figures being: Millom "Bessemer," No. 1, 95/; No. 2, 92/6; and No. 3, 90/; ordinary No. 3, 90/; No. 4, 87/6; No. 5, 87/6; M. and W., 105/ per ton on four months' terms. Maryport "hematite" No. 1 is also 95/; No. 2, 95/; and No. 3, 95/; No. 4, 90/; and M. and W., 90/. "Bessemer" No. 1, 100/; No. 2, 97/6; and No. 3, 95/ per ton. There is the usual discount for prompt cash in all cases.

Sir John Brown and Mr. Mark Firth, together with a couple of other gentlemen, have just returned from Spain, having been thither for the purpose of arranging for the development of the Galdames ore deposits near Bilbao. About £400,000 have already been expended on this undertaking by the Bilboa Iron Company, and so far the returns have not been of a very profitable nature. It must, of course, prove remunerative in the end. I shall allude to this matter again next week.

Henry Disston's representative is said to have taken a good many orders in London at about 15 per cent. under Sheffield prices, and is now, as *Iron* says, on his way to "beard the Sheffield saw grinder in his den." We shall, perhaps, hear in a few days how he succeeds at Sheffield. In cutlery there is, if anything, a little more business doing in best qualities of razors, ivory and fancy hafted table cutlery, carvers, and some few special descriptions of tradesmen's cutlery. Horns are in good demand at an advance. At the last Liverpool auction sales 210,000 East India buffalo horns were sold after a brisk competition, at a rise of 2/ to 3/ for both light and heavy kinds. Messrs. Goad, Riggs & Co. (Liverpool) report that at this auction there was a very good trade attendance, and nearly all the horns offered found buyers. South American sold at about late rates, buffaloes being 3/ to 4/ per cwt. dearer. The New York correspondent of one of the Sheffield newspapers again diliates upon the subject of competition in the cutlery trades. He makes some very strong assertions about your joint stock cutlery concerns—asserting that by "adding in" the stock or buildings at a good price in the balance sheet the losses occasioned by low prices are temporarily covered, and the "evil day" is so postponed. He does, however, give the Sheffield manufacturers some wholesome advice about the introduction of machinery (supporting my own views thereon), and advocates the sending over of a small committee of practical men to see everything that is being done by their competitors.

THE BOARD OF TRADE RETURNS.

The Board of Trade returns for September are, on the whole, a little less unfavorable than those of the preceding month, the falling off, as compared with the corresponding month of last year, being 3½ per cent. only, while the importations show an increase of 3 per cent. There is a considerable falling off in iron, the total being 71,199 tons this year and 84,274 in September last. This falling off is chiefly with Belgium, France and the United States. The total of wire is very satisfactory, and there has been some improvement in rails. No change in plate and plated ware or arms, but in ammunition the increase is enormous. Taking iron and steel jointly, the falling off in the nine months is 500,000 tons in quantity, and 5½ millions sterling in value, the only increase being 46,000 tons in quantity and £230,000 value in railroad iron. The following are the figures as to

COAL, COKE, &C.

To	Month ending Sept. 30th, 1873. Quantities. Tons.	Values. £	Month ending Sept. 30th, 1874. Quantities. Tons.	Values £
Russia	64,786	65,606	131,037	107,956
Sweden and Norway	65,794	65,356	112,109	87,893
Denmark	47,665	43,280	51,471	88,678
Germany	142,571	140,474	203,329	155,567
Holland	50,731	54,254	51,017	41,461
France	199,277	177,883	190,092	136,721
Spain & Canaries	36,366	42,196	48,601	43,128
Italy	81,990	92,992	113,076	89,008
Turkey	25,035	28,460	33,765	28,711
Egypt	53,114	57,789	57,393	50,865
Brazil	49,284	57,800	37,181	4,731
Malta	26,186	29,353	36,504	2,231
B'tish India	68,823	71,783	90,291	73,655
Other countries	223,291	251,204	250,088	203,796
Total	1,134,893	1,168,441	1,399,954	1,114,401

From the above figures it will be seen that about 265,000 tons more coal and coke have been exported in last month than in September, 1873; but that the increased shipment has produced less money by £54,000. The increased export has principally gone to Russia, Sweden, Germany and Italy.

NINE MONTHS ENDING 30TH SEPT.,

To	1873. Quantity. Tons.	Value. £	74. Quantity. Tons.	Value. £
Russia	565,305	596,611	802,412	712,555
Sweden and Norway	589,342	614,858	675,591	580,672
Denmark	427,850	420,159	482,323	396,527
Germany	1,320,251	1,238,505	1,514,529	1,258,436
Holland	340,034	371,559	333,322	304,322
France	1,779,987	1,655,302	1,721,301	1,415,417
Spain & Canaries	453,554	554,410	438,927	458,724
Italy	623,959	641,578	667,446	604,554
Turkey	188,111	206,631	267,187	244,695
Egypt	422,502	462,002	452,183	438,616
Brazil	278,912	327,381	271,621	288,200
Malta	202,495	225,781	231,021	227,471
B'tish India	353,929	385,725	447,403	416,769
Other countries	1,998,233	2,223,770	1,975,305	1,839,666
Total	9,444,464	9,924,273	10,310,570	9,186,624

For the past nine months, compared with the corresponding period of 1873, the exports of coal and coke have increased over 870,000 tons in quantity, while the total value has decreased almost three-quarters of a million sterling. The greater part of the increase in the quantity exported is due to the requirements of Russia and Germany.

The decreased value of hardware and cutlery is £31,000 for the month, and £457,849 for the nine months ending September 30th, comparing this with last year. The United States is reponsible for one-third of this diminution. Germany has failed us to a great extent, but on the other hand we find Canada a better customer than hitherto. The figures are these:

HARDWARE AND CUTLERY.

To	Month ending Sept. 30. 1873. £	1874. £	Nine months ending Sept. 30. 1873. £	1874. £
Russia	15,050	10,043	127,653	83,122
Germany	37,359	20,838	274,953	200,239
Holland	9,300	9,838	90,274	82,023
France	14,953	14,667	1.0,865	120,812
Spain and Canaries	5,647	6,021	79,803	78,762
United States	74,443	62,219	623,358	490,166
Sp'nsh West India Islands	13,035	9,229	122,047	57,249
Brazil	27,645	22,522	214,100	193,408
Argentine Republic	15.945	11,246	150,346	107,731
British N. A.	33,319	40,074	196,589	214,559
British India	16,331	24,231	156,776	230,424
Australia	43,043	48,058	411,468	452,738
Other countries	125,234	121,491	1,168,683	975,783
Total	431,295	400,473	3,726,865	3,269,016

IRON AND STEEL.

	Nine months ended September 30. 1873. Quantity. Tons.	Value. £	1874. Quantity. Tons.	Value. £
Bar, angles	221,644	2,871,131	178,542	2,191,409
Railroad	591,596	7,783,382	637,995	8,016,922
Wire	22,484	526,610	25,077	546,762
Sheets, arm'r plates, &c.	156,448	2,846,078	115,796	2,100 836
Tin plates	97,425	3,228,492	90,291	2,757,013
Cast or wr't.	220,747	4,288,270	195,621	3,874,929
Old for manufacture	51,670	341,122	34,327	197,727
Unw'rt steel	30,330	1,121,284	22,769	888,560
M'nfactures.	8,008	542,814	6,959	569,949
Total	2,296,990	29,144,217	1,880,640	23,702,877

WAGES ALTERATIONS.

At a representative meeting of both masters and men, just held, the wages of all finished or iron making op ratives have been reduced one shilling and ten per cent. per ton. Puddlers' wages are now 10/9 per ton—a result founded upon the report of Mr. Waterhouse, the accountant chosen to determine the average selling price per ton. His figures, dealing with the North of England, show very plainly that the deliveries during last quarter have been much less than usual. The proportions of the total production in that district were as under: Rails, 44·41 per cent.; plates and sheets, 31·72 per cent.; bar and other merchant iron, 15·97 per cent.; angle, T and bulb iron, 7·90 per cent. The total quantity of iron invoiced during the quarter was 140,725 tons, the average prices being—rails, £9. 7/2·13; plates, £10. 15/8·66; bars, &c., £9. 18/10·29, and angles, &c., £9. 19/9·13 per ton. These figures are from an actual inspection of makers' books. At the conference of the amalgamated association of miners, held at Birmingham last week, it was shown that 11 districts had seceded from the association, causing a decrease of 48,602 members during the past six months, and leaving the association with 57,766 members only. Generally speaking, the trades unions are just now in a weak, impecunious condition.

TRADE OF BIRMINGHAM AND STAFFORDSHIRE.

The quarterly meetings at Hanley, Wolverhampton, Birmingham and Dudley have practically made so little alteration in prices that they are hardly worth dwelling upon. At the Birmingham meeting the leading firms declared a drop of 20/ per ton, making marked bars £11, but the reduction had for some weeks previously been largely discounted by all the second-class makers, so that it could not be said to meet the views of merchant buyers. Second quality bars can be had at £9. 15/ to £10. 10/, in any quantity. Hoops are £11. 15/, £12 and £12. 10/; common rods, £10. 10/ per long weight ton, and gas strip at £10. £10. 10/ and £11, at the works. Shropshire and South Staffordshire pig iron was also lowered 10/ per ton all round, making hot blast native all mine £5 to £5. 5/ per ton. On October 8th Messrs. Barrows and Earl Dudley issued circulars reducing the prices of their iron 20/ per ton, making their figures for best bars £11. 12/6 per ton. The Birmingham hardware trades are a little busier, and there is more activity in the miscellaneous fancy branches. The tool makers are busy for Australia. Coffin furniture is advanced by about 2/ to 3/ per dozen, but steel spring measures are reduced by 10 per cent. and upward. Brass wire is reduced ½d. per lb., and lap welded boiler tubes are easier.

SOUTH WALES.

The reported sale of Cyrfarthfa is reported (once more!) to be incorrect—the fact being that Mr. Crawshay is making great alterations in his forge and puddling departments, as well as in the blast furnaces. He will soon be in the market again as an exceedingly formidable competitor. At the Landore Siemens steel works the misunderstanding with the workmen, of which I spoke last week, has resulted in the works being closed. Trade is stated to have been so very slack with them that a reduction of 15 per cent. was determined upon. The men would not agree to it, hence the stoppage of the concern.

THE METAL MARKET.

The metal market as a whole has been quiet

since my last report, and prices have not varied greatly. Copper has certainly been firmer, and both lead and spelter are still held tightly, but, on the other hand, tin and tin plates have shaded off a trifle, and figures for them are easier. Generally speaking, there is not a great business doing in any description. Many young firms have lately gone largely into this branch of trade. Messrs. Von Dadelszen & North say: *Copper* has further improved, and business would have been larger if holders had been willing to supply the demand at current rates. Chili bars have advanced to £83, cash, and 83. 10/, one month's prompt. Best brands have realized £85. Wallaroo is held for £92; Burra, £90. English copper firm, at last week's quotations. *Tin* has ruled quiet, with only a moderate amount of business. Straits has changed hands from £92 to £91, and Australian from £90 to £89; but there is a little more steadiness apparent. The Dutch market is quiet, but steady. Banca, 56½ fl.; Billiton, 54 fl. English tin firmly held. *Tin Plates.*—Makers are willing to book orders at previous quotations. *Lead.*—The market has a strong appearance, and in some quarters an advance of 5/ per ton is asked. Good soft pig, £22 to £22. 5/. *Spelter.*—Some Silesian in outports reported; ordinary brands at £23; specials at £23. 10/ to £23. 15/. *Quicksilver*, £24 per bottle.

The prices current of Messrs. James & Shakespeare (London, Oct. 8th) has the following remarks: *Tin.*—English is unaltered in value; the demand, however, is somewhat slack. For foreign there is no pressing inquiry, but since Friday last the transactions have been on a fair average scale. The deliveries for September were somewhat in excess of the quantity expected, though as yet they are not sufficiently large to cause any improvement in the market, which still has a tendency toward lower prices. At the Dutch sale on the 29th ult., 22,300 slabs Banca sold at an average of 59·80 fl., equal to 98,6 per cwt., laid down in warehouse, London, notwithstanding which result the news has had no effect upon values of other sorts, though the quotations for the said description continue to rule disproportionately high. The following shows the position of available foreign tin: Stock in London, 1st October, 1874, 2658 tons; Banca in Holland (in second hands), 877; Billiton in Holland, 1078; Straits afloat for Europe, 290; Billiton afloat for Europe, 233; Australian afloat for Europe (including tin in ore), 1000; total, 6766 tons; price of Straits, £92. The following shows the position of Banca tin in the hands of the Dutch Trading Company: Unsold in warehouse, 1st October, 1874, 3981 tons; afloat for Holland, 128; total, 4019 tons. The following represents the quantity of tin brought to market between 1st of January and 30th of September this year, as compared with 1873 and 1872: Sales of Banca by the trading company, 3469 tons; imports of Billiton, 2318; imports of Straits, 2774; imports of Australian tin, 2726; total metal, 11,317 tons; imports of Australian (pure) in ore, 2341 tons. Deliveries of foreign tin in London and Holland: 1st of January to 30th of September, 1874, 10,213 tons; during September, 1368 tons. The following are the statistics of Australian tin (reduced to pure metal), the ore being estimated to contain 70 per cent.: Imports into London, 1st of January to 30th of September, 1874, 5067 tons; imports into London during September, 603 tons. Quality estimated as afloat (reduce to pure metal), according to latest advices received: October, 1873, 352 tons; November, 839; December, 1052; October, 1874, 1000 tons.

The monthly circular of Messrs. Richardson & Co., Swansea, says: "We have to record a satisfactory change during the past month in the copper market. The confidence holders had in the expectation of a rise in values, as noticed in our last issue, has been fully substantiated, considerable business has been done, and prices of most articles in the metal trade have steadily advanced. The tone of the copper market as we write is good, and there is altogether more confidence in the position of affairs generally. Within the last few days large quantities of furnace material have been sold, to arrive, from 15/9 to 16/6 per unit, and tough cake and Chili bars of g. o. b. are quoted £4 per ton in excess of what they were for the corresponding period last month. The Chili advices giving charters for the second half of August reached us on the 3d ultimo, giving 2100 tons fine (1800 of which was in bars and ingots, and 300 in ores and regulus); this was a heavier total than was anticipated, seeing that the previous fortnight reached 2000 tons; the news, however, had only a momentary effect on the hardening tendency of our market. On the 25th ultimo, advice came of only 1000 tons chartered for the first half of September, which helped to bring down the former heavy quantities, and hence tended to further strengthen the upward march of values. The confidence imparted by the prolonged ease of the money market, coupled with the statistical state of the stocks, makes holders confident that a further rise must take place, they are therefore holding firmly, and will only listen to business at advanced rates. We have not heard of any further likelihood of our market being weakened by a sudden influx of lake copper, and we see no looming cause for bringing down the present healthy state of the trade. We quote ores and regulus, 16/ to 16/9 per unit; tough cake, £89 to £90; Chili bars, £81 to £82; bar silver, 4/9⅝ per oz. standard. *Tin.*—English block, £96 to £97; Straits, £90 to £92; Banca, £97 to £99. *Lead.*—English pig, £21. 15/ to £22. Spelter, £23. 15/ per ton. Bank rate of discount 3 per cent."

Latest Liverpool metal and iron prices are as follows:

Iron: f. o. b. in Liverpool, per ton.

	£	s.	d.	£	s.	d.
Merchant bar	9	7	6 to	9	10	0
Merchant bar, in Wales	9	0	0 to	9	2	6
Staffordshire	10	5	0 to	14	10	0
Hoop	12	0	0 to	13	0	0
Sheet	13	10	0 to	14	0	0
Nail rod	10	10	0 to	11	0	0
Bar, best crown	10	5	0 to	10	10	0
Boiler plates	12	10	0 to	13	10	0

Tin Plates: f. o. b. in Liverpool, per box.

	£	s.	d.	£	s.	d.
Charcoal, I. C.	1	16	0 to	1	19	0
Coke, I. C.	1	8	0 to	1	10	0

Copper: Delivered in Liverpool, per ton.

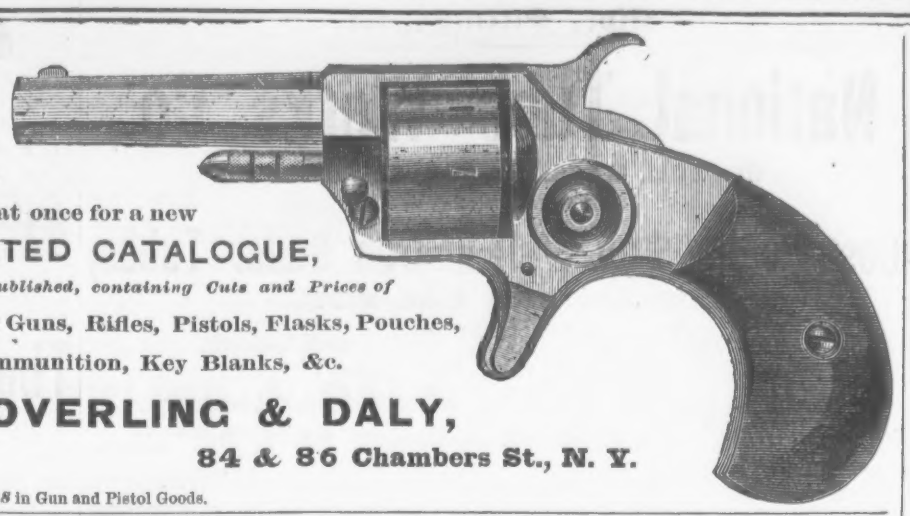
Bolt and Sheathing	£96
Tile	90
Tough cake	98
Best selected	90

Among the novelties in the way of machinery on exhibition at the Franklin Institute Fair, Philadelphia, we may mention a revolution indicator exhibited by Edward Brown, 311 Walnut street, Philadelphia. This instrument shows at a glance, by the hight of a column of mercury, the number of turns per minute made by a steam engine, without either counting or using a watch. It differs from the engine counter commonly used, which registers continuously the turns made per hour or day, but does not indicate the speed at any instant of time, simply by inspection, as does the revolution indicator. There are many engines which have to run at varying speeds for different operations, also engines controlled entirely by hand; for such the revolution indicator will be found particularly useful.

LITTLE JOKER.

The Best

Cheap Pistol Made.



Send at once for a new

ILLUSTRATED CATALOGUE,

The most complete ever published, containing Cuts and Prices of

Breech and Muzzle Loading Guns, Rifles, Pistols, Flasks, Pouches, Gun Material, Ammunition, Key Blanks, &c.

SCHOVERLING & DALY,

P. O. Box 5380, New York. **84 & 86 Chambers St., N. Y.**

Lists will be sent *only* to *DEALERS* in Gun and Pistol Goods.

MILLERS FALLS COMPANY, No. 78 Beekman Street, New York,

BARBER RATCHET BRACE.

This Brace has a **Lignumvitæ Head, Rosedle, Wrought Iron Nut & Socket,** with **Lignumvitæ Inn-Sweep, Malleable Iron**

Cast Steel Jaws,

It is beautifully finished, and in **MOST PERFECT** all respects the **BRACE IN MARKET.**

In places where there is not room to revolve the sweep, a slight back and forth motion will drive the bit in or out. They cost only 50 cents more than the same style of brace without the Ratchet attachment, and will surely come into general use.

Pawls and Rachet Wheel,

For Sale by all Hardware Dealers.

Miller's Falls Co.,

No. 78 Beekman St.,

NEW YORK.

WITH THIS

BRACKET SAW

An infinite number of useful and ornamental articles can be made. It will pay for itself every day when in use. The frame is 5x12 in., and made of red cherry wood, beautifully polished.

For sale at all Hardware stores.

Millers Falls Co.,

78 Beekman St., N. Y.

In addition to the 20 Cast Steel Tools inclosed in this handle, it will hold anything from an 8 inch Mill File to a Cambric Needle. It is by far the best Tool Holder in use, and will also answer nearly all the purposes of a Hand Vise. The wood is lignumvitæ and hard maple, the ferrule, malleable iron, and the jaws cast steel. Most hardware dealers keep them, or will send to us for them.

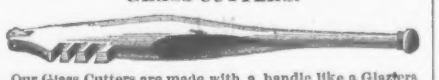
MILLERS FALLS CO, 73 Beekman St., N. Y.

IRON CUTTERS.

This is the most powerful Cutter in use, and just what is needed by all retail iron dealers. Also by shipbuilders, manufacturers, and all others having iron to cut. It will cut iron twice as large as any other machine of the same cost.

	Weight.	Cuts.	Price.
No. 1,	16 lbs.,	⅜x2 in., or ½ in. round or sq.	$3 25
No. 2,	165 lbs.,	⅜x3 in., or ⅝ in. " "	50
No. 3,	512 lbs.,	6-2x4 in., or 4-4 in. " "	75

GLASS CUTTERS.



Our Glass Cutters are made with a handle like a Glaziers Diamond, but, instead of the diamond point, they have a small hardened steel revolving wheel, the sharp edge of which cuts nearly as well as a diamond. They are durable, and will give entire satisfaction.

Manufacture **Barber's Bit Braces, Miller's Falls Vises, Little Giant Iron Cutters, Adjustable Chuck Breast Drills, Family Tool Chests, Pratt's Boiler Tube Scrapers, Patent Angular and Ratchet Drilling Machines, Langdon Mitre Boxes.**

HOWARD PARALLEL BENCH VISE.

MANUFACTURED BY

Howard Iron Works,

Send for price list. Buffalo, N.Y.

RUSSELL & ERWIN MFG. CO., New York and Philadelphia, Agents.

NOTICE.

These **Vises** are only manufactured at the **HOWARD IRON WORKS,** at **Buffalo, N. Y.** and are so stamped. The improvements in these **Vises** which are patented are valuable, and parties who claim to manufacture, and are offering a **Vise** representing it to be the same as the **HOWARD VISE,** are deceiving the Trade.

HOWARD IRON WORKS.

The Fisher & Norris Eagle Anvil Works.

(ESTABLISHED 1843.)

These Anvils are manufactured at the oldest Anvil Factory in this country. They are *superior* to the best English, or other Anvils, on account of the peculiar process of their manufacture (invented and used only by this concern), and from the quality of the materials employed.

The best English Anvils, after a time, become hollowing on the face by continued hammering in use, on account of the fibrous nature of the wrought iron—causing it to "settle" under the face.

The body of the Eagle Anvils being of crystallized iron, no such settling can ever occur; and the steel face, therefore, remains perfectly true. Also, it has the great advantage that being of a more *solid* material, and consequently with less rebound, the piece being forged receives the full effect of the hammer, instead of a part of it being wasted by the rebound, as with a wrought iron anvil. An equal amount of work can, therefore, be done on this Anvil with a *hammer one-fifth lighter* than that required when using a wrought iron anvil which is more elastic.

The working surface is in *one piece* of JESSUP'S BEST TOOL CAST STEEL, which, after being accurately ground, is hardened and given the proper temper for the heaviest work. The *horn* is covered with and its extremity made *entirely of steel.* The body of the Anvil is of the strongest grade of American iron, to which the cast steel face is *warranted to be thoroughly welded and not to come off.*

REDUCED PRICE LIST. ANVILS weighing 100 lbs. to 800 lbs., 11c. per lb.

Smaller Anvils, ("Minims.")

No.	0	1	2	3	4	5	6	7	8	9
Weighing about	10 lb.	15 lb.	20 lb.	30 lb.	40 lb.	50 lb.	60 lb.	70 lb.	80 lb.	90 lb.
Price,	$3·50	$4·25	$5·00	$5·50	$6·50	$7·50	$8·00	$9·00	$10·00	$10·50

THESE GOODS ARE SOLD BY THE GENERAL AGENTS (with special discounts to the trade).

New York.—Messrs. CLARK, WILSON & CO.—RUSSELL & ERWIN MANUFACTURING COMPANY.—Messrs. HORACE DURRIE & CO. Boston.—Messrs. GEORGE H. GRAY & DANFORTH. Philadelphia.—Messrs. JAMES C. HAND & CO. Baltimore.—Mr. W. H. COLE.

THE HOME CORN SHELLER.

The Best Hand Sheller for family use in the market. **Every Machine Warranted.**

Price, $2·50. Every Farmer and Poultry Raiser needs it. Liberal discount to Hardware Trade.

LIVINGSTON & CO., Pittsburgh, Pa.

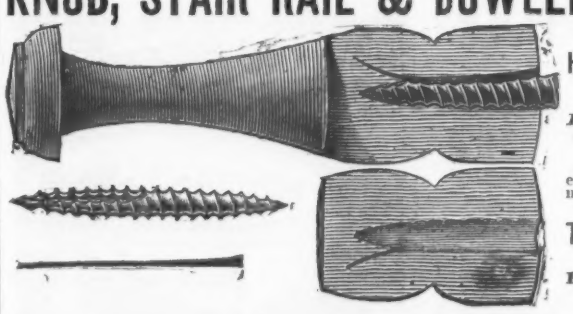
William N. Jennings,

FINE PRINTING and STATIONERY,

No. 43 Franklin Street,

Bet. Broadway & Elm St., **NEW YORK**

KNOB, STAIR RAIL & DOWELING SCREWS.



Self-Attaching

HAT & CLOSET PINS,

Picture Knobs,

DOOR STOPS, DRAWER KNOBS, &c., &c.

Screw has gimlet points at both ends, and is slotted at one end to admit of a key, which holds it fast.

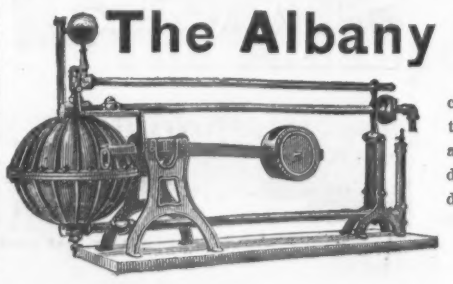
Manufactured by

Thurston Knob Screw Co.

349 Washington St., Boston.

Fernald & Sise, N. Y. Agents, 100 Chambers St.

The Albany Steam Trap.



This Trap automatically drains the water of condensation from *Heating Coils,* and returns the same to the Boiler *whether* the Coils are *above or below* the water level in Boiler, thus doing away with pumps and other mechanical devices for such purposes. Apply to

TOWNSEND & BLESSING,

Albany, N. Y.

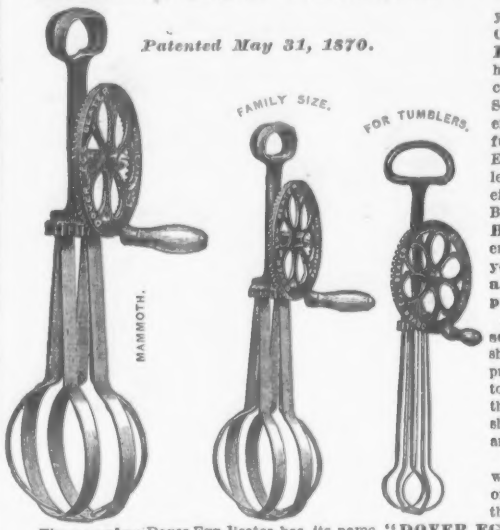
DOVER STAMPING CO.,

88 & 90 North Street, Boston.

SOLE OWNERS AND MANUFACTURERS.

DOVER EGG BEATER.

Patented May 31, 1870.



The **genuine** Dover Egg Beater has its name **"DOVER EGG BEATER"** legibly cast on the face of the large wheel.

Special Notice to the trade.

The long contested suit (more than two years' in court) Monroe *vs.* Dover Stamping Co., which was brought to **destroy** the **DOVER EGG BEATER PATENT,** has been **decided in our favor** (see decision of the Circuit Court of the United States, Sept. 8, 1874, Shepley, judge), thus ending disastrously to our opponents, and fully vindicating the integrity of the Dover Egg Beater Patent, which we shall maintain legally against all who infringe the same or either of our seven other patents on Egg Beaters. **Imitations** of our **Dover Egg Beaters** or either of the Egg Beaters covered by our Patents, **manufactured beyond the limits of the United States, and brought here for sale, will be promptly and severely dealt with.**

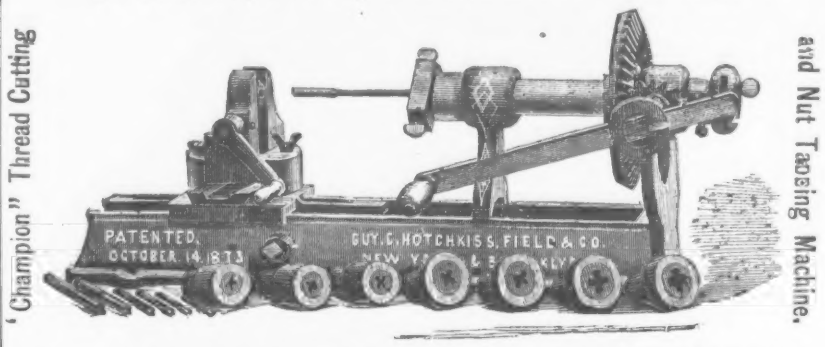
All persons are cautioned against **buying, selling** or **using** such infringements, as we shall prosecute all concerned in the illegal practice. We have already commenced suits to suppress the **manufacture** and **sale** of the so-called **PEERLESS BEATER,** and shall require all who infringe our rights to answer legally for their acts.

Remember that **buying** and **selling** as well as **manufacturing** any infringements of our Patents exposes one to **three times** the damages awarded by a jury.

DOVER STAMPING CO.

Guy C. Hotchkiss, Field & Co.,

85 First St., Brooklyn, E. D., and New York City.

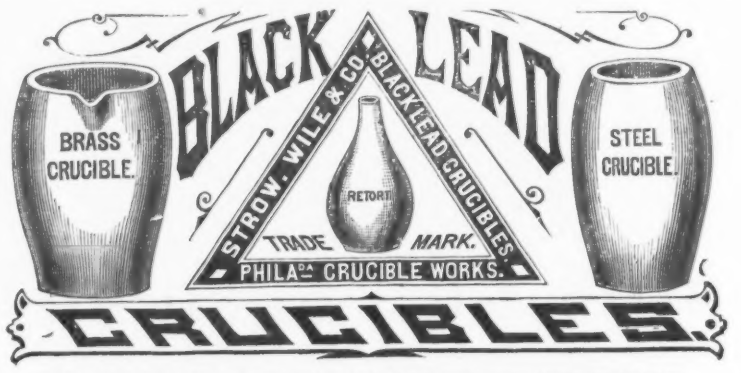


This machine has revolving and sliding jams, which enables the operator to cut all kinds work, no matter how irregular in shape it may be. It cuts a perfect thread at once going over. As much work can be done in one hour by this machine as in a day with stocks and dies. Send for Circular.

Manufacture Carriage Materials, Axles, Springs, Blacksmiths' Supplies, Bolts, Wood Work, Trimmings, &c.

IMPORTERS AND DEALERS IN

IRON AND STEEL.



FOR MELTING ALL KINDS OF METALS,

And Manufacturers of

Sunny Side Stove Polish.

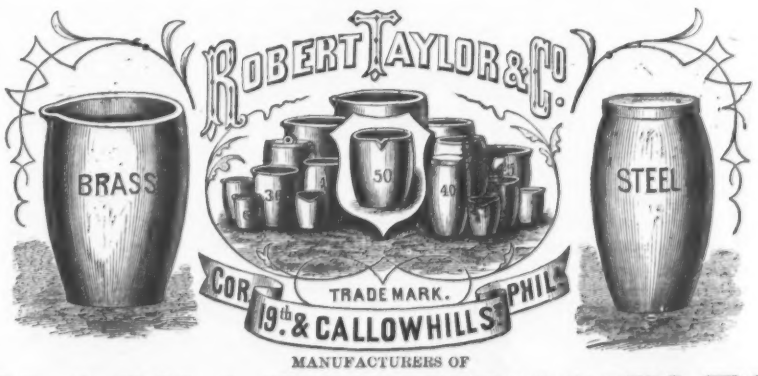
Lumber Pencils, Foundry Facings and Lubricating Plumbago.

STROW, WILE & CO.,

Nos. 1324, 1326, 1328, 1330, 1332 & 1334 Callowhill St., Phila.

GENERAL AGENTS:

Messrs. HALL & CARPENTER, 709 Market St., Phila.



MANUFACTURERS OF

BLACK LEAD CRUCIBLES

Of all Sizes and Forms for melting

Steel, Brass, Gold, Nickel and all kinds of Metals.

Mr. Robert Taylor, who was for seven years the head of the late firm of Taylor, Strow & Co., and who is a practical mechanic, and familiar with all the details of the manufacture of Crucibles, attends personally to our manufacturing department. We would, therefore, respectfully solicit a continuance of the favors hitherto extended to him.

ROBERT TAYLOR & CO.,

No. 1900, 1902, 1904 & 1906 Callowhill, St., Philadelphia.

General Agents. { **MERCHANT & CO.,** 507 Market Street, Philadelphia. **PARK & CO.,** 123 Second Avenue, Pittsburgh, Pa.

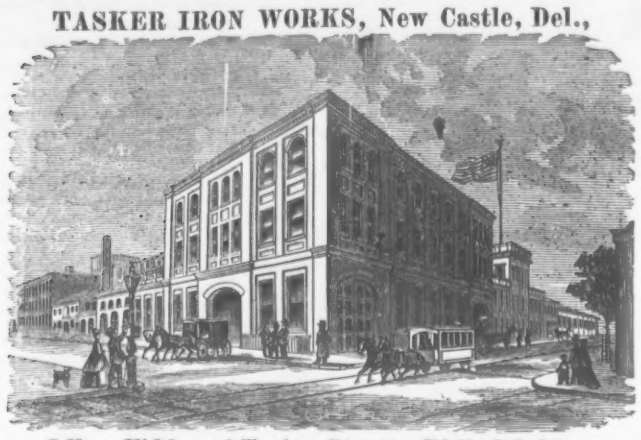
Pipe, Fittings, &c.

Thomas T. Tasker, Jr. Stephen P. M. Tasker

MORRIS, TASKER & CO.,

PASCAL IRON WORKS, Philadelphia,

TASKER IRON WORKS, New Castle, Del.,



Office, Fifth and Tasker Streets, Philadelphia.

Office and Warehouse, No. 15 Gold Street, New York.

Office and Warehouse, No. 36 Oliver Street, Boston.

MANUFACTURERS OF

WROUGHT IRON WELDED TUBES,

Plain, Galvanized and *Rubber-Coated*, for Gas, Steam and Water.

Lap-Welded Charcoal Iron Boiler Tubes.

Oil Well Tubing and Casing, Gas and Steam Fittings, Brass and Steam Fitters' Tools, Cast Iron Gas and Water Pipe, Street Lamp Posts and Lanterns, Improved Coal-Gas Apparatus, Etc.

Ecton Mills Genuine London TURKEY EMERY.

TRADE MARK.

ABBOTT & HOWARD, Agents for the United States.

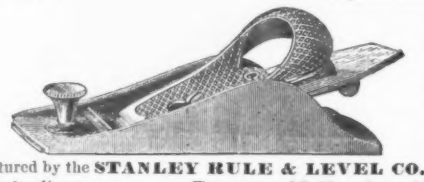
81 John Street, New York. 35 Oliver Street, Boston.

BAILEY'S PATENT ADJUSTABLE PLANES.

Thirty different styles in

IRON AND WOOD. **80,000 ALREADY IN USE.**

Smooth Planes,
Jack Planes,
Fore Planes,
Jointer Planes,
Block Planes,
Rabbet Planes,
Circular Planes.



Carpenters,
Cabinet Makers,
Car Builders,
Carriage Makers,
Millwrights,
Wheelwrights,
All Use them.

Manufactured by the **STANLEY RULE & LEVEL CO.,**

Factories: **New Britain, Conn.** Warerooms: **35 Chambers Street, New York.**

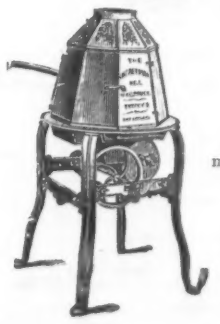
UNION NUT COMPANY,

78 Beekman Street, N. Y.

MANUFACTURERS and AGENTS.

Machine Forged Nuts,	Magnetic Tack Hammers,	Carriage Steps,	Bench Saw Sets,
Hot Pressed Nuts,	Common and Patent Wood Choker Mouse Traps,	Slat Irons,	Corn Hooks,
Wrought Iron Washers,		Stump Joints,	Axe Hand'le Bush Hooks,
Tin Washers,	Elastic Base Knobs,	Body Loops,	Butchers' Cleavers,
Carriage Bolts	Steak Hammers,	Box Hooks,	Nail Sets,
Machine Bolts	Boxwood Rules,	Box Chisels,	Cork Screws,
Plow Bolts.	Ivory Rules,	Tobacco Needles,	Ice Awls,
Stove Bolts,	Plumbs and Levels,	Table Nut Cracks,	Ice Axes,
Elevator Bolts	Adjustable Plumbs and Levels,	Hasps and Staples,	Tinned Meat Hooks,
Tire Bolts,		Ox Bow Pins,	Can Openers,
Fancy Bolts,	Pocket Levels,	Bull Rings,	Patent Boot Jacks,
Bolt Ends,	Wagon Jacks,	Cattle Leaders,	Wood Handle Cover Lifters,
Coach Screws,	Axle Clips,	Boxwood Wheel Sash Pulleys,	Hickory Bung Starts,
Turn Buckles,	Saddle Clips,	Coopers' Rivets,	Lignumvitæ Mallets,
Blacksmiths' Hammers.	Fifth Wheels,	Carriage Rivets,	Tin Spoons,
Riveting Hammers,	Shaft Couplings,	Boiler Rivets.	Brass Ferrules.
Machinists' Hammers,	Felloe Plates,	Hand-Saw Sets	
Carpet Hammers,			

The "EMPIRE" Fan Blowing Portable Forges,



With or without Hood.

(Patented Nov. 25, 1873.)

WITHOUT BELTS OR BELLOWS.

It is more **Easily Worked**, gives a **Better Blast**, and is the **Cheapest** Forge made.

☞ **IT HAS NO BACK DRAUGHT.**

Manufactured by W. P. KELLOGG & CO., Troy, N. Y.

Also **Curry Combs, Boring Machines, & Cooley's Whip Racks, etc.**

N. Y. Depot for **Curry Combs, &c.**, with F. WIEBUSCH, 84 Chambers Street.

N. Y. Depot for **Forges**, with GEO. PLACE & CO., 121 Chambers & 103 Reade Streets.

Pipe, Fittings, &c.

National Tube Works Co.,

BOSTON, MASS. and McKEESPORT, PA.,

MANUFACTURERS OF

Best Quality Lap Welded Iron Boiler Tubes,

STEAM AND GAS PIPE,

Artesian Oil and Salt Well Tubing and Casing,

With Patent Protecting Coupling;

Mack's Patent Injector for Feeding Boilers.

JAMES C. CONVERSE, President, McKeesport. WM. S. EATON, Treasurer, Boston.

New York Office and Warehouse 78 William cor. Liberty Street.

McNab & Harlin Mfg. Co.,

MANUFACTURERS OF

BRASS COCKS

For STEAM, WATER and GAS.

Wrought Iron Pipe & Fittings, Plain and Galvanized

PLUMBERS' MATERIALS.

Illustrated Catalogue sent by express to the Trade on application.

Factory, Paterson, N. J. 56 John Street, N. Y.

PANCOAST & MAULE

227 Pear St.

PHILADELPHIA.

WROUGHT IRON PIPE

FITTINGS, BRASS & IRON VALVES & COCKS

TOOLS & STEAM FITTERS SUPPLIES &c.

PIPE CUT & FITTED TO PLANS FOR MILLS &c.

CONTRACTORS

FOR HIGH & LOW PRESSURE STEAM HEATING APPARATUS FOR ALL CLASSES OF BUILDINGS.

Send for Illustrated Catalogue.

EATON & COLE.

Manufacturers of

Wrought Iron Pipe Fittings,

BRASS VALVES, COCKS, TOOLS, &C.,

58 John Street, NEW YORK.

Sole Agency for the Pacific Coast for

Regester's Patent Gauge Cocks,

CONROY, O'CONNOR & CO.,

San Francisco, Cal.

Sole Agency for the East.

CAST IRON PIPES

FOR WATER AND GAS.

Branches Retorts, &c.

Warren Foundry & Machine Co.,

PHILLIPSBURG NEW JERSEY.

WHEATCROFT'S

SELF-ADJUSTING PIPE WRENCH.

Forged from Best Tool Steel.

The dog is solid over the head of the lever bar, taking the strain off from the pin.

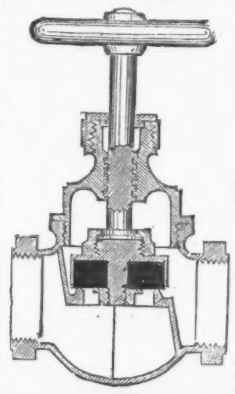
Each Wrench takes four Sizes of Pipe.

J. AUSTIN & CO. 168 Fulton St, N. Y.

Nelson, Finkel & Co.,

439 East 10th St., New York,

Manufacturers of

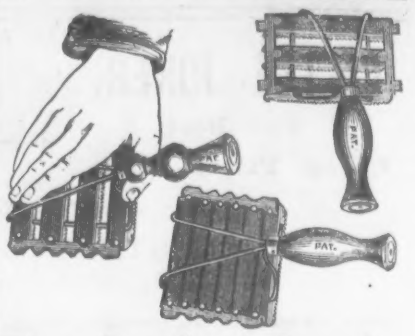


Jenkins' Patent **Compression Valves** AND **Gauge Cocks**

Also,

Nelson's Patent **LUBRICATOR.**

Warranted the most reliable and durable in the country.



The Perfect Comb.

We call your attention specially to our new patent endless wire frame comb. The result of a long series of experiments, made with a view to meeting all the requirements of a *Perfect Comb*. It is better, stronger, and more durable than any ever before invented. The raised wire shank gives what has never before been attained, viz: a rest and brace for the thumb, in such a position that the hand cannot come in contact with the horse while using the comb. The wire braces which run from the shank over the back to the front teeth give strength and durability in a direction never heretofore attained, and at the same time serve as an extra handle; and when clasped by the fingers in connection with the raised shank the comb is more firmly, easily, and completely held, and with much less fatigue to the hand than is possible in any other formation—in short, it needs but a trial to vindicate its name: **The Perfect Comb.**

THE LAWRENCE COMB CO.

Factory and Office,

382 2d Ave., cor. 22d St., N. Y.

THE CHARLES GREGG MANUFACTURING CO.

BRASS WORK of all kinds,

FITTINGS FOR

Steam, Gas and Water

PLAIN AND GALVANIZED

WROUGHT IRON PIPE,

Nos. 62 & 64 Gold Street, NEW YORK.

Business Established, 1830. Incorporated, 1872

Send for Price List.

GRAFF TUBE WORKS.

WILLIAM GRAFF & CO.,

Manufacturers of Plain and Galvanized

Wrought Iron Pipe

For

Gas, Steam, Water, Oil, &c.,

No. 140 First Ave., PITTSBURGH, PA.

Pipe of any Size, Length or Thickness furnished to order.

WM. S. CARR & CO.

Sole Manufacturers of

Carr's Patent Plumbers' Goods

Pumps, Water Closets, Fountains, Vases, &c.

OFFICE AND WAREROOMS

106, 108 & 110 Centre Street,

Factory, Mott Haven, New York.

R. D. WOOD & CO.,

PHILADELPHIA,

Manufacturers of

Cast Iron Water and Gas Pipe, Lamp Posts, Retorts, &c.

Also, Race & Mathews' Patent Hydrant. This Hydrant is perfectly anti-freezing, is the most ornamental and the cheapest made.

R. PAINE, Selling Agent, Office, 173 Broadway, N. Y.

Chicago Chain Works,

S. G. TAYLOR, Prop.

Nos. 98 & 100 Indiana St., Chicago, Ill.

Dredge and Crane Chain, a specialty.

American Chain Cable Works.

Thirty years' experience in the business.

KENDRICK & RUNKLE, Trenton, N. J., Manufacturers of **Cable, Crane, Car Brake, Agricultural Machine and Harness Chains** of every description. Also, sole manufacturers of **KENDRICK'S PATENT IMPROVED TRIPLE COAL MINE SLOPE CHAIN.**

N. B. The highest grades of Crane Chains a specialty.

New England Chain Works

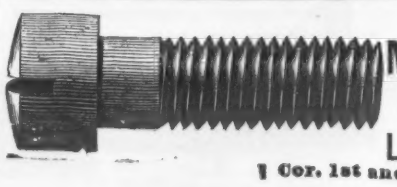
771 Eddy Street, Providence, R. I.

Manufacture **Iron Chain** of every description.

Mowing Machine, Crane, Break Draft Chains, &c., &c.

Also, Latest Improved Cotton Gin Rings.

THOS. WYATT, Proprietor.



TURNED

MACHINE SCREWS,

One-sixteenth to five-eighths diameter. Heads and points to sample.

IRON, STEEL and BRASS.

Lyon & Fellows Mfg. Co.,

Cor. 1st and North 3d Streets, Williamsburgh, N. Y.

The Iron Age Directory

and Index to Advertisements.

New Coal Fields in European Turkey.

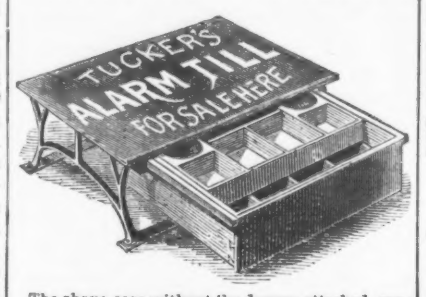
The latest of the series of commercial reports issued by the British foreign office, contains the following:

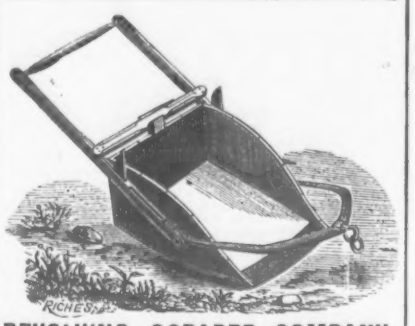
A party of English engineers having recently surveyed, on behalf of the Viceroy of Egypt, the coal field of Dranista, and excavated from it some 350 tons of coal, which they have sent to Wales for the purpose of satisfactorily testing its steam generating or other properties, I have obtained from them the following account of their survey: The coal field of Dranista is situated about fifty miles to the southwest of the town of Salonica, and is enclosed by a range of mountains of crescent shape, commencing on the south at Mount Olympus, and terminating on the north at the Bay of Kitros, in the Gulf of Salonica. There is an aggregate thickness of about 8 feet of coal, extending over a known area of about 2000 acres; but it is highly probable that the coal field is of much greater extent, and although not actually proved, the engineers are of opinion, judging from the surface formation, that there is a total area of thirty square miles in which the above thickness of coal would be found, and which, in round numbers, would contain 255,000,000 tons of coal. The coal is of the tertiary formation, appears to be of good quality, and would be useful for steam purposes. It burns very well in the open air, giving good heat, with very little smoke; but the engineers were not prepared to give me a definite opinion as to the chemical properties and fitness of the coal for generating steam, they not having been provided with means of making proper experiments with it on the spot. They say that in outward appearance it most resembles Scotch coal, but differs from all English coal in its rapid deterioration upon exposure to the atmosphere. When so exposed it breaks up and crumbles into dust in a very short time, but when stored under cover it preserves its quality very well.

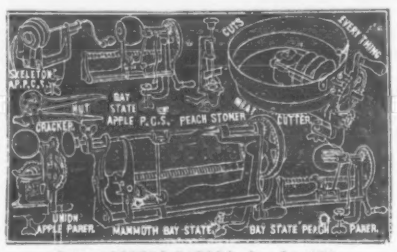
So far three seams have been proved, of which the following are sections: Demolaca.—Soft fire clay roof—top coal, 1 foot 9 inches; soft holding dirt, 2 inches; bottom coal with shale bands, 1 foot 6 inches; total thickness of good coal, 2 feet 9 inches. Loptacaria.—Coal, 8 inches; fire clay, 2 feet 10 inches; coal, 5 inches; coal with bands of black shale, 1 foot 6 inches; fire clay, 6 inches; coal, 1 foot 4 inches; total thickness of good coal, 2 feet 1 inch. Laca.—Coal mixed with fire clay, 10 inches; coal, 4 inches; black shale, 6 inches; coal, 3 inches; fire clay, 7 inches; coal, 2 inches; black shale, 9 inches; coal with bands of fire clay, 2 feet; total thickness of good coal, 2 feet 3 inches. Should the experiments with the coal prove satisfactory as regards its quality and marketable value, active operations on an extensive scale will probably be commenced early this year. The engineers propose sinking two pits, each of 300 yards depth, and to construct a rail or tram road of about twenty miles in length from the mines to Kitros, the nearest and most eligible place for shipping on the coast. The sinking of the pits would not entail great expense, as the ground to be sunk through consists principally of alluvial and tertiary deposits. And the railway also could be cheaply constructed, the country through which the line would traverse being very level. A jetty would have to be erected at Kitros, this harbor being very shallow, and exposed to northerly winds.

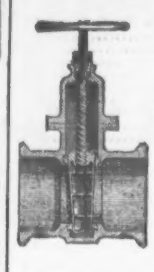
I am indebted for most of the above information to Messrs. Gray and Bell, the engineers who surveyed the coal field. Dranista, the chief village in the vicinity of this coal field, is prettily situated at the foot of Mount Olympus, in the center of a well wooded and picturesque country; its climate is salubrious, and the peasantry of this and surrounding villages, principally Greeks, are industrious and quietly disposed. Catterina, the nearest town to Dranista (three hours distant) is the center of a very active and extensive trade in timber, which gives profitable employment to the population of the district. It is governed by a sub-governor under the Pasha of Salonica, with which, and with the chief towns in Thessaly and Macedonia, it is in telegraphic communication. In a country like Turkey, where the consumption of coal goes on continually increasing, owing to the advance it is making in agriculture, industry and population, and to the success of railway extensions and other undertakings, the coal mines of Dranista, if they are found sufficiently fertile and worth working, will be of very great consequence.

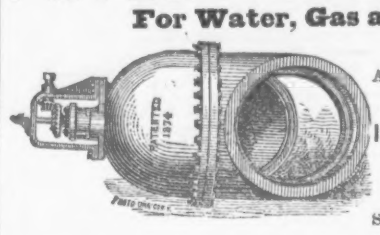
A number of cars constructed at Troy will be shipped to Melbourne in a few days, to be used upon an Australian road.

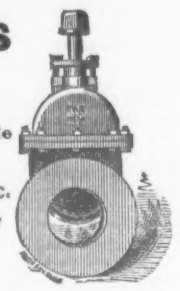












HENRY DISSTON & SONS,

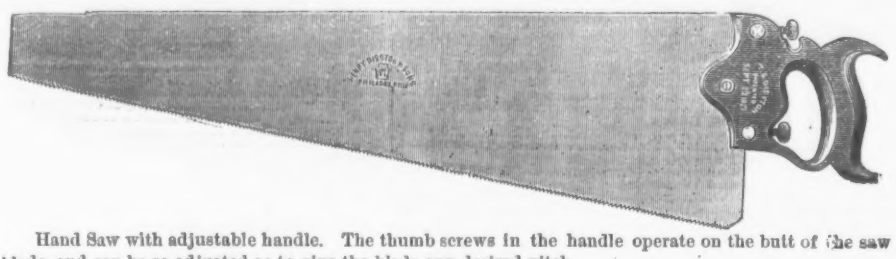
Keystone Saw, Tool, Steel and File Works,

PHILADELPHIA.

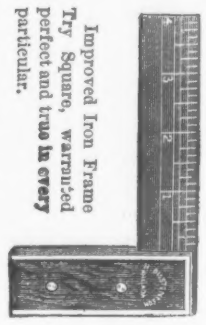
Manufacturers of SHEET STEEL, and all Articles made from Sheet Steel.

SAWS OF EVERY DESCRIPTION.

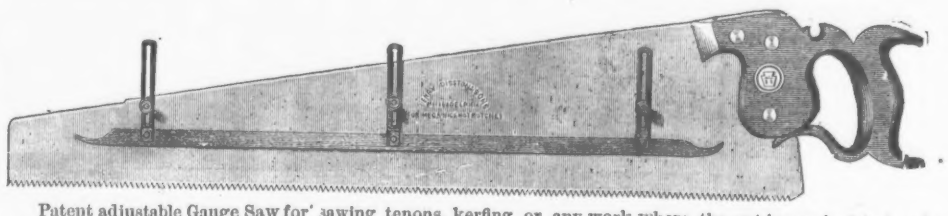
Also, FILES, TOOLS, Etc., and all kinds of Labor Saving Implements for keeping Saws in perfect order.



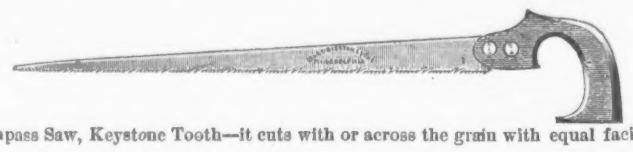
Hand Saw with adjustable handle. The thumb screws in the handle operate on the butt of the saw blade, and can be so adjusted as to give the blade any desired pitch.



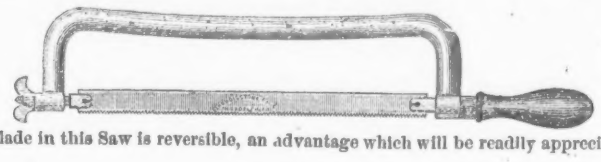
Improved Iron Frame Try Square, warranted perfect and true in every particular.



Patent adjustable Gauge Saw for sawing tenons, kerfing, or any work where the cut is required to be of definite depth. Will pay for itself in one day. Try it and be convinced. Remove the gauge and use as an ordinary saw.



Compass Saw, Keystone Tooth—it cuts with or across the grain with equal facility.



Hack Saw. The blade in this Saw is reversible, an advantage which will be readily appreciated by mechanics

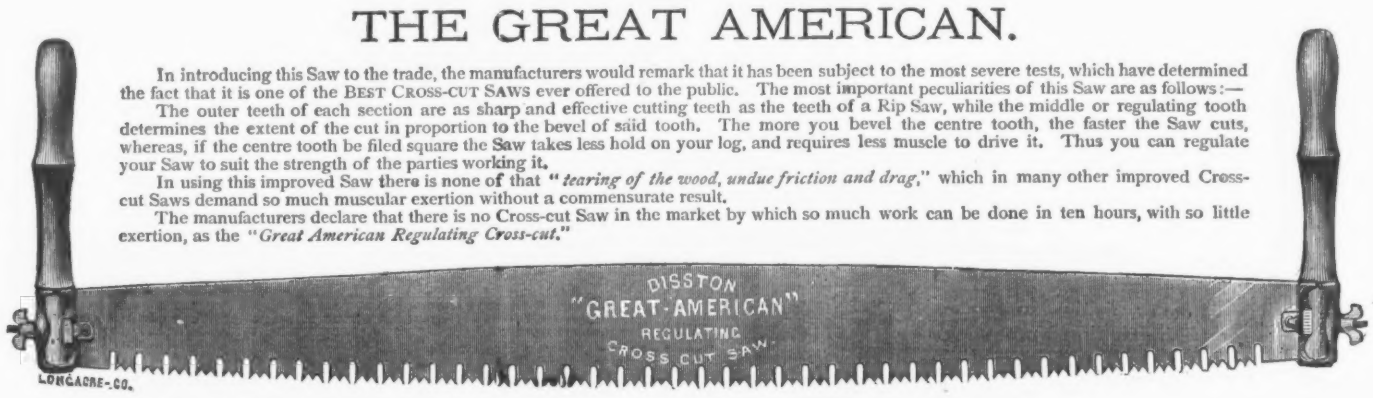
THE GREAT AMERICAN.

In introducing this Saw to the trade, the manufacturers would remark that it has been subject to the most severe tests, which have determined the fact that it is one of the BEST CROSS-CUT SAWS ever offered to the public. The most important peculiarities of this Saw are as follows:—

The outer teeth of each section are as sharp and effective cutting teeth as the teeth of a Rip Saw, while the middle or regulating tooth determines the extent of the cut in proportion to the bevel of said tooth. The more you bevel the centre tooth, the faster the Saw cuts, whereas, if the centre tooth be filed square the Saw takes less hold on your log, and requires less muscle to drive it. Thus you can regulate your Saw to suit the strength of the parties working it.

In using this improved Saw there is none of that "*tearing of the wood, undue friction and drag*," which in many other improved Cross-cut Saws demand so much muscular exertion without a commensurate result.

The manufacturers declare that there is no Cross-cut Saw in the market by which so much work can be done in ten hours, with so little exertion, as the "*Great American Regulating Cross-cut.*"



READ, MARK, LEARN.

We guarantee our Cross-Cut Saws to do more work, day in and day out, the season through, than any other saw in the market.

The test of practical experience has been ap-

plied, the verdict given, the fiat has gone forth, and the Humbugs are fast fizzling out, while our rapidly increasing sales testify to the esti-

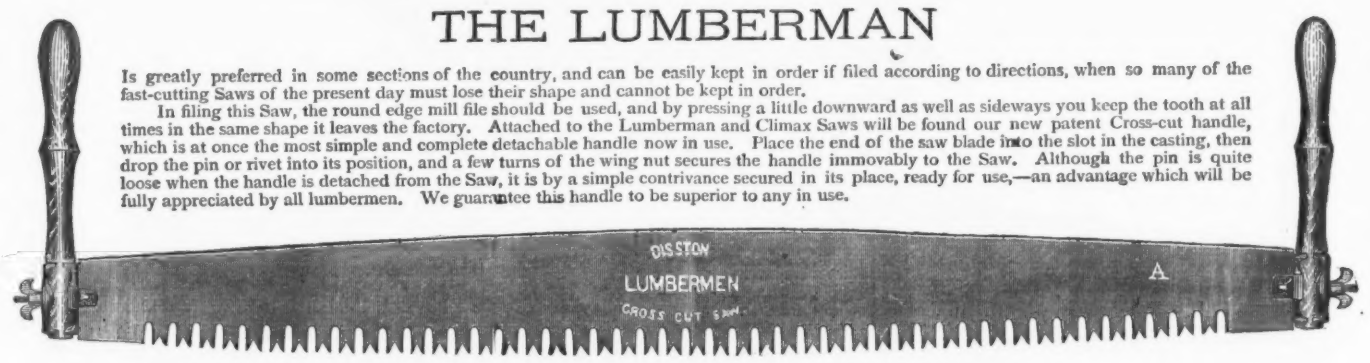
mation in which these saws are held.

We pledge ourselves that no effort shall be wanting to keep up the standard and reputation of our manufactures.

THE LUMBERMAN

Is greatly preferred in some sections of the country, and can be easily kept in order if filed according to directions, when so many of the fast-cutting Saws of the present day must lose their shape and cannot be kept in order.

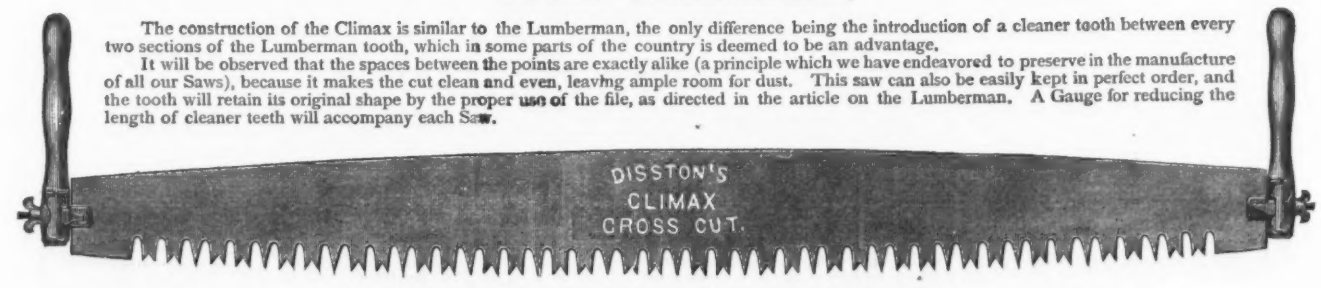
In filing this Saw, the round edge mill file should be used, and by pressing a little downward as well as sideways you keep the tooth at all times in the same shape it leaves the factory. Attached to the Lumberman and Climax Saws will be found our new patent Cross-cut handle, which is at once the most simple and complete detachable handle now in use. Place the end of the saw blade into the slot in the casting, then drop the pin or rivet into its position, and a few turns of the wing nut secures the handle immovably to the Saw. Although the pin is quite loose when the handle is detached from the Saw, it is by a simple contrivance secured in its place, ready for use,—an advantage which will be fully appreciated by all lumbermen. We guarantee this handle to be superior to any in use.



THE CLIMAX.

The construction of the Climax is similar to the Lumberman, the only difference being the introduction of a cleaner tooth between every two sections of the Lumberman tooth, which in some parts of the country is deemed to be an advantage.

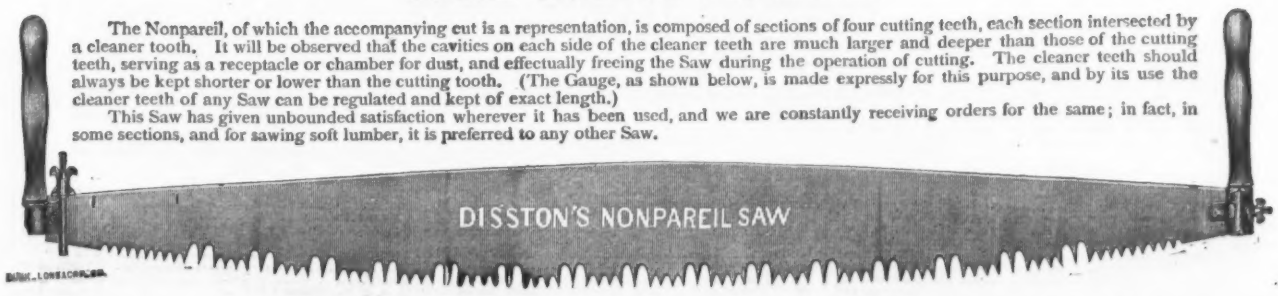
It will be observed that the spaces between the points are exactly alike (a principle which we have endeavored to preserve in the manufacture of all our Saws), because it makes the cut clean and even, leaving ample room for dust. This saw can also be easily kept in perfect order, and the tooth will retain its original shape by the proper use of the file, as directed in the article on the Lumberman. A Gauge for reducing the length of cleaner teeth will accompany each Saw.



THE NONPAREIL.

The Nonpareil, of which the accompanying cut is a representation, is composed of sections of four cutting teeth, each section intersected by a cleaner tooth. It will be observed that the cavities on each side of the cleaner teeth are much larger and deeper than those of the cutting teeth, serving as a receptacle or chamber for dust, and effectually freeing the Saw during the operation of cutting. The cleaner teeth should always be kept shorter or lower than the cutting tooth. (The Gauge, as shown below, is made expressly for this purpose, and by its use the cleaner teeth of any Saw can be regulated and kept of exact length.)

This Saw has given unbounded satisfaction wherever it has been used, and we are constantly receiving orders for the same; in fact, in some sections, and for sawing soft lumber, it is preferred to any other Saw.



Plain Truths for Practical Men.

We guarantee our Cross-Cut Saws to do more work, day in and day out, the season through, than any other saw in the market.

The test of practica experience has been ap-

plied, the verdict given, the fiat has gone forth, and the Humbugs are fast fizzling out, while our rapidly increasing sales testify to the es-

timation in which these saws are held.

We pledge ourselves that no effort shall be wanting to keep up the standard and reputation of our manufactures.

Gauge for Regulating Cleaning Teeth.

The cleaning teeth of all saws should be somewhat shorter than the cutting teeth, and, although shortened, they should be of uniform length throughout. The inner edge of the Gauge rests on the points of the cutting teeth, the cleaning teeth projecting through the opening in centre of Gauge. Reduce the projecting points, by means of a file, until arrested by the edges of the Gauge, which is made of hardened steel. Thus tooth after tooth can be rapidly and correctly reduced to an even length by any unskilled operator

Showing the Gauge in Position for Filing the Cleaner Tooth

New York Wholesale Prices, October 28, 1874.

HARDWARE.

Anvils.
Solid Cast Steel....................℔ 14c
Wright's..........℔ gold 11¼c; over 250 ℔s 12c, gold
Armitage's Mouse Hole......................gold 11c
Wilkinson's...........................℔ gold 11½c
Eagle Anv s, ℔ 11c currency..............dis 15&10 %
Apple Parers.
Domestic } Turn Table } Lightning } Hudson's } Reading } Union } ....$7 @ 8 ℔ doz
Skeleton Paring, Coring and Slicing....
Turn Table, old style..................$6·75 dis 10 %
Bay State, Paring, Coring and Slicing........$15 00 dis 5 %
Climax Slicer......................8 00
Bay State Peach Parer..............$11 00 @ 11 50
Lightning " "......................11 00 @ 11 50
Peach Stoner and Halver....................7 00
Augers and Bits.
Douglass } Ives } Beecher } Griswold } Challenge } Noble } 1st quality.....dis 25, 10&10 %; 2d quality....dis 25, 10, 10&5 %
Snell Mfg. Co.......................dis 15 @ 20 %
Russell Jennings............................dis 10 %
Douglass Mfg. Co. Hollow Augers...............25&10 %
Cushman's Expanding Hollow Augers..........dis 20 %
Ives Gouge Lip Augers and Bits...........dis 30&10 %
" Hollow Augers.....................dis 25&10 %
" Expansive Hollow Augers..............dis 40 %
" Expansive Bits.......................dis 20&10 %
Andrews' Bits..............................dis 25 %
Clark's Expansive Bits.....................dis 15 %
Cook's Patent Augers.......................dis 50 %
" " Bits...........................dis 40&10 %
Shepardson's Double Cut Bits.................dis 20 %
Griswold's Patent...........................dis 20 %
Gimlet Bits..................................dis 30 %
Long Augers..........................new list dis 40 %
Bonney's Patent Hollow..........$48 per doz—dis 25 %
Stearns' " "..........$48 per doz—dis 25 %
Morse's Bit Stock Drills......................dis 20 %
L'Hommedieu's Ship Augers.....................dis 15 %
Watrous Ship Augers...........................dis 15 %
Vaughan's Post Hole—
6 in. $23 60; 9 in. $25 per doz..............dis 20 %
Awls and Tools.
Aiken's..dis 25 %
Nos. 42 and 43..............................dis 35&10 %
Axes.
Brook's........................per doz $12 00 @ 14 00 net
Blood's...........................per doz $12 50 @ 14 00
Hunt's..........℔ doz $14 00 @ 19 00 dis 5&5&5 % cash
Collins'..........℔ doz 11 00 @ 15 50 net @ dis 5 %
Hurd's.............................℔ doz 12 50 @ 13 50
Schweitzer Mfg. Co.'s..............℔ doz 13 00 @ 15 00
Simmons'...........................℔ doz 11 00 @ 11 50
Morris'............................℔ doz 12 50 @ 13 50
Red Jacket.........................℔ doz 12 00 @ 12 50
Mann's.............................℔ doz 11 50 @ 13 00
Double Bitted......................℔ doz 21 50 @ 22 00
Lowell Tool Co., "Peerless"........℔ doz 13 00 @ 14 50
Underhill's........................℔ doz 12 00 @ 13 00
" Crown..........................℔ doz 12 50 @ 13 50
John Leverett's....................℔ doz 13 50 @ 15 50
Ten Eyck....................℔ doz $11 00 @ 12 50 net
Balances.
Chatillon's..................................dis 35 %
Frary's......................................dis 35 %
Morton's.....................................dis 35 %
Bands.
Plated...........................new list dis 50&5 %
Iron Rim.........................new list dis 25&5 %
Brass (Plated list).............new list dis 50, 10&5 %
Oroide...........................new list dis 50&5 %
Bells.
Hand, Light Brass........................dis 65, 5&10 %
Hand Ex. Heavy...............................dis 40&10 %
White Metal..................................dis 50&10 %
Sheep..dis 25 %
Swiss..dis 50 %
Globe..dis 15&10 %
Abbe's.......................................dis 15&10 %
Taylor's Patent Door.........................dis 25 %
Western Gong.................................dis 25 %
Brook's Crank....................revised list dis 50 %
Pull.....................revised list dis 50 %
Hart Mfg. Co., Crank and Pull................dis 50&10 %
Cow—Common Wrought..........................dis 20&10 %
Western......................new list dis 20&10 %
Kentucky "Star"..............new list dis 20&10 %
Dodge's Genuine Kentucky..........new list dis 35 %
Yaw's Genuine................................dis 30 %
Texas..dis 35 %
Call...dis 15 %
Bellows.
Blacksmiths'.................................dis 20 %
Moulders'....................................dis 15 %
Hand Bellows.................................dis 10 %
Blind Adjusters.
Domestic.......................℔ doz $3—dis 20 %
Blind Fasteners.
Mackrell's...................................dis 30 %
Van Sand's...........................℔ gross $14 00
Washburn's Patent....................℔ gross 14 00
Merriman's.............................new list net
Blind Staples.
Boardman's Patent, ½ in. and larger..........℔ ℔ 37 c
" ⅜ in..........................." 42 c
Blocks.
Tackle, Rope and Iron Strapped, Providence Tool Co.'s list...........................dis 30 %
Bolts.
Cast Iron Barrel, Shutter, &c......new list dis 60, 10&10 %
Wrought Iron Barrel..............new list dis 50, 10&10 %
" " Square.............new list dis 50, 10&10 %
Wrought Iron Flush...........................dis 15&10 %
Carriage and Tire, Common...................dis 75&10 %
" " " Norway Iron.................dis 50&10 %
Star, Philadelphia.....................dis 50 @ 50&10 %
Eagle, Philadelphia....................dis 50 @ 50&10 %
Philadelphia Pattern, P. S. & W..............dis 50&10 %
Tire, Bessemer Steel, Hubbard & Curtiss.........dis 50 %
Carriage and Tire, R. B. & W..........old list dis 50&10 %
Plow, R. B. & W..............................dis 30 %
Stove, R. B. & W.............................dis 20 %
" Shelton Co, Shaved Heads....................dis 20 %
Union Nut Co., old list...................dis 50&2½&5 %
" " Stove..............................dis 15 %
Machine...............................dis 40 @ 45 %
Borax...........by case, 15c.; less, 17c. ℔ ℔
Boring Machines.
Kellogg's....................................dis 15 %
Snell Mfg. Co., Rice's Patent................dis 20 %
" " Regular..........................dis 20 %
Douglas Mfg. Co..............................dis 20&10 %
Morticing Machines each.......................$18 00
Bow Pins.—Union Nut Co., new list..dis 50&10&5 %
Braces.
Bildreth's Patent...........................dis 40, 10&5 %
Barber's Patent..............................dis 40&5 %
Q. S. Backus.................................dis 40&10 %
Wilson Mfg. Co....................new list dis 10 %
Spofford's Patent............................dis 40&5 %
Noble's Patent...............................dis 40&5 %
Bartholomew's American Ball..................dis 10&10 %
" Patent Grip.............................dis 40 %
Ives' Novelty................................dis 40&5 %
Common Ball..................................dis 15&10 %
Brackets.
Shelf..dis 60&10 %
Bull Rings.—Union Nut Co., new list..dis 50&10&5 %
Bung Hole Borers.
Common and Ring..............................dis 25 %
Enterprise Mfg. Co...........................dis 20 %
Ives' Tap Borers.............................dis 25 %
Butchers' Cleavers.
Humason & Beckley Mfg. Co....................dis 20&10 %
Bradley's....................................dis 25 %
Beatty's.............................new list dis 20 %

2	3	4	5	6	7	8	9
$19·90	$21·50	$24·00	$27·00	$30·00	$33·50	$36·50	$40·00

Hart Mfg. Co..............................dis 45&10 %

0	1	2	3	4	5	6
$25·25	$29·75	$30·25	$38·75	$43·55	$48·50	$54·00

Butts.
Wrought Brass..........................new list dis 30 %
Cast Fast Joint, Narrow..................dis 35 @ 50&5 %
" " Broad..............................dis 50&5 %
Cast Loose Joint.............................dis 60&10 %
" " Mayer..............................dis 50&5 %
" " Parliament.........................dis 50&5 %
Drilled Wire Jointed—
Narrow.......................................dis 50&10 %
Broad..dis 50 %
Loose Joint..................................dis 60 %
Mayer's......................................dis 40&10 %
Parliament...................................dis 40&10 %
Loose Pin....................................dis 5&10 %
Wrought Fast Joint, Narrow...................dis 30 %
Wrought Broad................................dis 35 %
" Loose Joint..............................dis 35 %
Wrought Table and Back Flaps.................dis 30 %
Lull & Porter's Blind Butts..................dis 30 %
Palmer Blind Butts...........................dis 30&10 %
Nicholson Blind Butts........................dis 40&10 %
Parker's Blind Butts.........................dis 55&10 %
Huffer's Blind Butts.........................dis 33⅓&10 %
Clark's Surface Blind Hinges, Nos. 1, 3 and 5..dis 50&10 %
" " " " No. 40 and 50.....dis 50&5 %
" " " " No. 20..............dis 60 %
" Mortise " " 2, 4, 4½, 6, 8, 10.......dis 35 %
Seymour's....................................dis 50&5 %
Shepard's....................................dis 50&5 %
Garretson's...No. 1, dis 50&10 %; Nos. 2 and 7 dis 50&5 %
The American Spiral Spring Butt Co...........dis 20 %
Standard.....................................dis 50&5 %
Caps—Percussion, per 1000.
G. D.......................................37 @ 40c
Ely's E. B.............1-4s, 58c.; 1-10s, 65c., gold
" Double Waterproof, 1-4s, $1·45; 1-10s, $1·52½c., gold
Colt's........................1-10s 70c., gold
Carpet Sweepers.
Union..............................each $2 75 net
Welcome............................each 2 75 net
Cartridges.
Metallic.....................................dis 50&10 %
Cards.—Horse and Curry......................dis 30&10 %
Cotton...........................new list dis 10&10 %
Wool.............................new list dis 15&10 %
Carpet Stretchers.
P. S. & W................per doz $2 00; dis 40&5 %
Casters.
Bed..dis 30&10 %
Plate..dis 40&10 %
Sewing Machine...............................dis 70&10 %

Cattle Leaders.....................new list dis 60&10 %
Chain
English Coil..............................net gold

℔ ℔	13	9¼	9	8½	8¼	8c
	3-16	¼	5-16	⅜	7-16	½

Trace, 6½-10-2...........by the cask, ℔ pair, gold, 58c
Trace, 7-10-2............by the cask, ℔ pair gold, 68c
Galvanized Pump Chain.......................℔ ℔ 14c
German Halter Chain..............new list, Jan. 1, dis 20 %
German Coil......................new list, Jan. 1, dis 20 %
Jack Chain, Iron..............................dis 50 %
" Brass............................dis 40 %
Chalk.
White.................................℔ gross, 50c
Red...................................℔ gross, 75c
Blue..................................℔ gross, 90c
Crayons...............................℔ gross, 14c
Chisels.
Socket Firmers................................dis 60&10 %
Socket Framing................................dis 60&10 %
Socket Corner.................................dis 60&10 %
Tanged Firmers................................dis 45&10 %
Butcher's......................$5·50 to £ gold—new list
Newbould's...............................$5·50 to £ gold
Spear & Jackson's..............$5·50 to £ gold—new list
Clamps.
Cabinet.......................................dis 60&10 %
Judd's..dis 45&10 %
Lambert's.....................................dis 20 %
Providence Tool Co............................dis 10 %
Clips, Axle.
Norway or Best................................dis 30 %
Superior......................................dis 50 %
"Star," Superior Philadelphia.................dis 45&5 %
Coal Shovels.
Iron Handled..........................℔ doz, $ 85 @ 1 25
Wooden Handled........................℔ doz, 1 00 @ 2 00
Coal Hods.—Smith, Burns & Co.............dis 15 @ 25 %

	14	15	16	17	18 inch.
Japanned	$6·00	6·35	6·75	7·50	8·00 per doz.
Galvanized	9·50	10·00	10·75	11·50	12·50 "

Morning Glory Funnel Hods—

	No. 15	16	17
Japanned	$9·00	10·50	12·00 per doz
Galvanized	13·00	14·50	16·00 "

Sidney Shepard & Co.'s new list...............dis 10 %
Cockeyes..................................dis 30 %
Cocks.
Brass Racking.................................dis 20&10 %
Lock and Globe................................dis 20&10 %
Coffee Mills.
Board and Box.................................dis 15 %
Increase Wilson's.....................new list dis 15 %
Selsor's Pat..................$9·50, $10·50—dis 25 %
French Steel..................................dis 15 %
The Swift.....................................dis 25 %
"American" (Enterprise Mfg. Co)...............dis 20 %
Diamond, per doz $4·00........................dis 10 %
Compasses and Dividers.
Bemis...dis 35 %
Cook's..dis 15 %
Excelsior.....................................dis 30 %
Peck Stow & Wilcox............................dis 25 %
Coopers' Tools.
Bradley's.............................dis 15 @ 20 %
Chas. E. Little.......................dis 20 @ 25 %
Swan & Bronbacner.....................dis 15 @ 20 %
Corkscrews................................dis 25 %
Corn Knives and Cutters.
Bradley's.....................................dis 10 %
Croquet.—Phineas Smith....................dis 40&10
Crow Bars.
Cast Steel.............................℔ ℔ 11c. net
Iron, steel points.........................℔ ℔ 6c
Crucibles.
Gautier & Co..............................℔ No. 5½c
Curling Irons..............................dis 20&10 %
Curry Combs.
Hotchkiss' and Kellogg's, Iron and Brass....dis 30&10 %
Fitch's.......................................dis 15&10 %
Rubber........................℔ doz, $9·00—dis 15 %
Schweitzer Mfg. Co............................dis 20 %
The Lawrence Curry Comb Co....................dis 20 %
Curtain Pins.
Silvered Glass.....................old list dis 52½ %
Cutlery.
American Table................................net list
American Pocket...............................dis 25 %
Am. Pocket—Humason & Beckley Mfg. Co......dis 20&10 %
Dippers.
Britannia.......per doz 7·50—dis 30 %; by bbl. dis 33⅓ %
Cocoa, Plain...................per doz $3·25—dis 20 %
" Rimmed..................per doz 3·75—dis 20 %
Dog Collars.
Embossed Gilt.................................dis 20 %
Leather.......................................dis 20 %
Door Springs.
Gray's.........................$7·50 ℔ doz—dis 50 %
Torrey's Patent................$7·50 ℔ doz—dis 50&10 %
Palmer's Japanned No. 6......................℔ doz $5·00
" Coppered " .... " 6·00
" Silvered " .... " 8·00
Challenge.—
Japanned.............................℔ doz $4 00 @ 6 00
Bronzed..............................℔ doz 5 00 @ 7 00
Nickel Plated........................℔ doz 6 50 @ 9 00
1 Gross lots..................................dis 10 %
5 Gross lots..................................dis 20 %
Gem.—No. 1 large.........................per doz $4·00
No. 2 medium.............................per doz 3·50
No. 3 small..............................per doz 3·00
In Gross Lots.................................dis 10 %
Drawing Knives.................dis 60 @ 60&10 %
Bradley's.....................................dis 25 %
Adjustable Handled............................dis 15 %
Drills.
Ingersoll's Ratchet...........................dis 25 %
Moore's Triple Acting Ratchet.................dis 20 %
Whitney's Ratchet.............................dis 20 %
Blacksmiths'.................each $7 75—dis 60&10 %
Drill Chucks.
The Danbury..................each 10·00—dis 25 @ 30 %
Drug Mills.
American Drug Mills (Enterprise Mfg. Co.).......dis 20 %
Egg Beaters.
Monroe's............... 8 in. 10 in.
Per doz $8·00 9·00......................dis 10 %
Dover..................................℔ doz net $6·00
National........................℔ doz $4·50—dis 20 %
Peerless........................℔ doz $4·00—dis 10 %
Emery.
Genuine Chester—Regular Nos........℔ ℔ 7c } dis 10 %
Flour and FF..........℔ ℔ 4c }
Washington Mills—Regular Nos................℔ ℔ 8c
" Flour.....................................℔ ℔ 5c
Enameled and Tinned Ware.
Kettles.......................................dis 35 %
Sauce Pans....................................dis 25 %
Glue Kettles..................................dis 20 %
Tinned Saucepans..............................dis 25 %
Escutcheons.
Brass Thread..................................dis 60&10 %
Wood..dis 25 %
Faucets.
Cork Lined, Wood..............................dis 60&10 %
Fenn's..dis 50 %
" Cork Stops................................dis 40 %
Star..dis 55&10 %
Frary's Patent Petroleum......................dis 15&10 %
Taylor's Pattern " ....dis 20&10 %
Wood and Metallic.............................dis 40 %
Felloe Plates...............℔ ℔ 14c; dis 10 %
Files.
American File Co..............$5 00 to £ currency—dis 10 %
Nicholson.....................$5 00 to £ currency—dis 12½ %
Hartford File Co..............$5 50 to £ currency—dis 10 %
Newbould's.............................5 25 to £ gold
Rothery's............................$5 to £ currency
J. & Riley Carr's Files and Rasps......5 50 to £ gold
Stubs'........................8 50 @ 9 00 to £ gold
Butcher's..............................5 50 to £ gold
Walter Spencer & Co.'s "Diamond"......5 25 to £ gold
Spear & Jackson's......................5 00 to £ gold
Hargreaves, Smith & Co.'s..............5 00 to £ gold
Jowitt's...............................5 25 to £ gold
"Western"..............................5 00 to £ net
W. K. & C. Peace's "Imperial"..........5 25 to £ gold
R. Ibbotson............................5 00 to £ gold
Beam & Murray, "Cyclops"...............4 85 to £ gold
Fisher's...............................4 75 to £ gold
Goodlad's..............................4 00 to £ gold
Moss & Gamble.................5 25 @ 5 50 to £ gold
Thos. Turner & Co. (Peter A. Frasse & Co.) 5 00 to £ gold
" " Horse Rasps...........5 50 to £ gold
"Philo Sheffield," P. T. Co............5 00 to £ gold
Floral Tools..............................dis 25 %
Fluting Machines.
Mrs. Coles, 7 inch rolls.......................6 50
" " 5 " "......................................5 50
Knox, with 4-inch Rolls..........5 00 each dis 12½ %
" " 6 " "..................6 00 each dis 12½ %
O. K.................................6 50 each net
Peerless, 4-inch Rolls...............4 00 each net
" 5 " "..............................4 75 each net
Excelsior, No. 1.....................4 75 each net
" No. 2..............................6 50 each net
Diamond..............................7 50 each net
Climax 7-inch Rolls..................8 00 each net
" 4½ " ....6 50 each net
Empire...............................4 00 each net
Eureka, No. 1, 7-inch Roll...........8 00 each net
" No. 2, 5-inch Roll.................6 00 each net
K. F. M., 4½-inch Roll...........5 50 each dis 15 %
" 6-inch Roll....................6 00 each dis 15 %
Myers Fashion Fluter, 4½-inch Rolls....3 00 each net
" Convex Brass Fluter, Sad Iron attachment..$1·75
Domestic Fluter.....................$1·75 each net
Fairy, Self-Heater...................8 00 each net
Geneva Hand Fluter..............$15 00 per doz net
Champion, 6 inch rolls...........$6 00 each dis 10 %
" 4 inch rolls...................$5 00 each dis 10 %
Fluting Scissors..........................dis 20&10 %
Forges.
Keystone Portable Forge Co.'s.................dis 20 %
"Empire" (W. P. Kellogg & Co.)................dis 20 %
Forks.
Hay, Manure & Spading.........................dis 30 %
Plated A 1.............................dis 40, 10&5 %
Freezers.
Champion......................................dis 33⅓
Torrey's......................................dis 50 %
Fry Pans.—P. S. & W.
Tinned..dis 30 %

℔ doz	$3·00	3·25	3·62	4·00	4·50	5·00	5·50	6·00	7·50
No.	0	1	2	3	4	5	6	7	8

Smith, Burns & Co., "Excelsior" Polished..........dis 35 %

℔ doz	$3·70	4·00	4·70	5·30	6·00	7·00	8·00	9·00
No.	1	2	3		5	6	7	8

Gas Stoves.
Tiff & Howard.................................dis 20 %
Gauges.
Marking.......................................dis 45&10 %
Wire..dis 10 %

Gimlets.—Metal and Wood Head..........dis 25&10 %
Grind Stones.—J. F. Green & Bro............dis 20 %
Grind Stone Fixtures.....................dis 50&10 %
Hammers.
Emmet Hammer Co...............................dis 25 %
Humason & Beckley Mfg. Co...............dis 16⅔&10 %
Maydole's, new list...........................dis 5 %
Cheney's..................................new list net
Verree..dis 5 %
Yerks & Plumb.................................dis 12½ %
Magnetic Tack.................................dis 20&10 %
Warner's......................................list net
Hand Cuffs and Leg Irons.
Tower's.......................................dis 25 %
Providence Tool Co.'s.........................dis 10 %
Hand Cuffs..................................$15 per doz
Leg Irons...................................$25 "
Handles.
Wrought Chest.................................dis 60&10 %
Flush Chest...................................dis 60&10 %
Lifting.......................................dis 60&10 %
Coffin..dis 50&10 %
Saw and Plane.................................dis 20&10 %
Hammer and Hatchet............................dis 10 %
Greensboro', Axe, Pick, Hammer, &c............dis 10 %
Woolworth Axe, Pick and Sledge................dis 10 %
Brad Awl.................per gross $3 50—dis 20&10 %
Hickory Firmer Chisel, ass'td " 5 25—dis 10&10 %
" " " large " 6 25—dis 10&10 %
Apple " " ass'td " 6 00—dis 10&10 %
" " " large " 7 00—dis 10&10 %
Socket " " ass'td " 3 50—dis 10&10 %
" Framing " " " 6 00—dis 10&10 %
File.......................... " " 3 50—dis 10&10 %
Auger......................... " " 5 50—dis 10&10 %
" large " 6 50—dis 10&10 %
Hangers.
Barn Door.....................................dis 65&10 %
"Anti-Friction" (Rider, Wooster & Co.)........dis 30 %
Novelty.......................................dis 30 %
Harness Snaps.
Henshaw's.....................................dis 25&10 %
Judd's..dis 40 %
Fitch's.......................................dis 30 %
Hotchkiss'....................................dis 10 %
Andrews'......................................dis 25 %
Sargent's.......................new list dis 50&10 %
New York Wire.................................dis 20&20 %
Hatchets.—Isaiah Blood....................dis 10 %
Shingling, Nos. 1 2 3........℔ doz $7 50 8 00 8 50
Claw, " 1 2 3........℔ doz 8 50 9 00 9 50
Lathing, " 1 2 3........℔ doz 7 50 8 00 8 50
Hunt's..dis 10 %
Shingling, Nos. 1 2 3........℔ doz $7 25 8 00 8 75
Claw, " 1 2 3........℔ doz 7 75 8 50 9 25
Lathing, " 1 2 3........℔ doz 7 50 8 25 9 00
Hurd's..dis 20 %
Shingling, Nos. 1 2 3........℔ doz $8 00 8 50 9 00
Claw, " 1 2 3........℔ doz 9 00 9 50 10 00
Lathing, " 1 2 3........℔ doz 8 00 8 50 9 00
Newark's Edge Tool Co.'s......................dis 25 %
Shingling, Nos. 1 2 3........℔ doz $6 50 7 00 7 50
Claw, " 1 2 3........℔ doz 7 25 7 75 8 25
Lathing, " 1 2 3........℔ doz 6 50 7 00 7 50
Yerkes & Plumb................................dis 12½ %
Shingling, Nos. 1 2 3........℔ doz $7 00 7 50 8 00
Claw, " 1 2 3........℔ doz 7 50 8 00 8 50
Lathing, " 1 2 3........℔ doz 7 00 7 50 8 00
Simmon's......................................dis 15 %
Shingling, Nos. 0 1 2 3....℔ doz $7 50 8 00 8 50 9 00
Claw, " 1 2 3....℔ doz 9 00 9 50 10 00
Lathing, " 1 2 3....℔ doz 8 00 8 50 9 00
Broad, " 1 2 3....℔ doz 9 00 10 00 12 00
" " 4 5 6....℔ doz 14 00 16 00 18 00
" " 7 8....℔ doz 20 00 22 00
Elephant......................................dis 25 %
Shingling, Nos. 1 2 3........℔ doz $8 00 8 50 9 00
Claw, " 1 2 3........℔ doz 9 00 9 50 10 00
Lathing, " 1 2 3........℔ doz 8 00 8 50 9 00
J. P. Verree & Co.............................dis 5 %
Shingling, Nos. 1 2 3........℔ doz $7 00 7 50 8 00
Claw, " 1 2 3........℔ doz 7 50 8 00 8 50
Lathing, " 1 2 3........℔ doz 7 00 7 50 8 00
Underhill's...................................dis 10 %
Shingling, Nos. 1 2 3........℔ doz 7 25 8 00 8 75
Claw, " 1 2 3........℔ doz 7 75 8 50 9 25
Lathing, " 1 2 3........℔ doz 12 00 11 00 13 00
Hinges.
Gate, Western.............℔ doz $6·25—dis 60&10 %
" N. E....................℔ doz 11·25—dis 60&10&10 %
" N. Y. State.............℔ doz 7·20—dis 60&10 %
Rolled Plate..................................dis 75 %
" Raised......................................dis 75 %
Wrought Strap and T.....................dis 35 @ 40 %
Providence Plate. { 6 and 8 in. list 11c. / over 8 in. list 9½c. }..........dis 25 %
Screw Hook and Strap.......{ 8, 10, 12 in. 7½c / 14 to 36 in. 5⅝c }....net
Heavy Welded Hook.........{ 8 to 12 in., 9c / 14 in. & up, 8½c } dis 10 %
Screw Hook and Eye.........{ ⅜ to 1 in., 9½c / ⅝ in. 10½c / ½ in. 12½c }....net
Hoes.
Solid Shank, C. S..............℔ doz $8 00—dis 30 %
Socket.........................℔ doz 9 00—dis 30 %
Riveted Eye....................℔ doz 5 00 dis 30 %
Grub..dis 20 %
Planters'—Winsted.............................add 10 %
Scovill.......................................add 33⅓ %
Scovill Pattern (Winsted).....................add 20 %
Hooks.
Harness...............................dis 60, 10&5 %
Bird Cage.....................................dis 70&10 %
Cotton..dis 50 %
Belt..dis 50&10 %
Clothes Line..................................dis 60&10&10 %
Bench—Skinner's..............per doz $8 00, dis 30&10 %
Bench—Hotchkiss' $5 00 ℔ doz.................dis 10 %
Bench—Weston's No. 1, $8·00; No. 2, $7·00 per doz net
" —McGill's.................$3 00 per doz, dis 10 %
Wardrobe, Japanned..............new list dis 60, 10&10 %
Hat and Coat " ....new list dis 60, 10&10 %
Wrought Staples and Hooks and Staples.........dis 70&10 %
Screw Hooks and Eyes, revised list........dis 70, 10&10 %
Grass...dis 20 %
Whiffletree—Patent............................dis 30 %
Hooks and Eyes—Malleable Iron.................dis 55 %
" " Brass.....................................dis 55 %
Horse Nails.
Putnam's.

No.	5	6	7	8	9	10
	32c	28c	26c	25c	24c	23c

In lots 2000 lbs. dis. 5 %.
Ausable Horse Nail Co.

No.	5	6	7	8	9	10
Ausable	30c	27c	25c	24c	23c	22c
Pointed and Polished	31c	28c	26c	25c	24c	23c
Pointed and Blued	32c	29c	27c	26c	25c	24c

In lots of 1000 lbs., 5% discount.
Brundage.

No.	5	6	7	8	9	10
	29c	26c	24c	23c	22c	21c

In lots of 500 lbs., dis. 5 %.
American Pressed.

No.	5	6	7	8		10
	22c	20c	20c	20c	20c	20c

In lots of 1000 lbs. dis 5 %.
Perkins Finished (ready to drive).

No.	5	6	7	8	9
	31c	28c	26c	25c	24c

In lots of 1000 lbs. dis 5 %.
Buffalo Forged.

No.	6	7	8	9	10
	28c	26c	25c	24c	23c

Globe (Pointed and Polished).

No.	5	6	7	8	9	10
	31c	28c	26c	25c	24c	23c

In lots of 1000 lbs., 5 % discount.
National (Pointed and Polished).

No.	5	6	7	8	9	10
Patent Finish	28	25	23	22	21	20
Extra "	30	27	25	24	23	22

In lots of 1000 lbs., dis 5 %.
Vulcan (Blued, pointed, ready to drive).

No.	5	6	7	8	9	10
	33c	30c	28c	27c	26c	25c

In lots of 500 lbs., 5 % discount.
" 1000 lbs 7½ % discount.
New London Horse Nails.

No.	6	7	8	9	10
Great Western	27c	25c	24c	23c	22c
U B	29c	27c	26c	25c	24c

In lots of 1000 lbs., dis 5 %.
Star Brand.................................℔ ℔ 16c
Morgan...14c
Horse Shoes.
Burden.............................℔ keg, $5 85
R. I. Horse Shoe Co., Perkins Pattern.....℔ keg, 5 85
" " R. I. Pattern..........℔ keg, 6 35
Mule Shoes.........................℔ keg, 6 85
Ice Picks.
Iron..............℔ gross $12 00 @ $16 00 net
White's.......................per doz $2 50 dis 10 %
W. H..........................per doz 1 00 dis 10 %
Dunlap's......................per doz 3 00 net
Kettles.
Brass...............................℔ ℔ 55c net
In lots of 500 ℔s...................℔ ℔ 50c net
Knives.
Ames' Butcher Knives..........................dis 20 %
" Shoe " ....dis 15 %
" Bread " ....℔ doz $1·50—dis 15 %
Hay and Straw, "Wadsworth's"..................dis 20 %
Lothrop's Cocoa Handle Lap Bolster Butcher Knives.......................................dis 25 %
Knobs.
Carriage......................................dis 60&10 %
Base—Common...................................net
" Plush Tip...................................dis 10 %
" Elastic End..............reduced list dis 10&10 %
Ladles.
Melting.......................................dis 20 %
Lanterns.
Peerless......................................dis 10 %
Brady's Patent................................dis 10 & 10 %
Ætna..dis 10 & 10 %
Yankee..dis 10 & 10 %
De Beque......................................dis 10 & 10 %
Lemon Squeezers.
Porcelain Lined..............per doz $7 00, dis 10 %
Lines.
Linen Fish....................................dis 10&10 %
Cotton Chalk..................................dis 40 %
Silver Lake Chalk.............................dis 10&10 %
Mason's.......................................dis 10&10 %
Galvanized Wire Clothes.........$1 per 100 ft. dis 30 %
Locks and Latches.
Cabinet—Eagle.................................dis 25 %
Cabinet—Gaylord...............................dis 25 %
Langstroth & Crane............................dis 40 %
Trunk...dis 15 %
Continental...................................dis 15 %
Shepardson's..................................dis 20 %

Romer's Padlocks..............................dis 15 %
Scandinavian Jail.............................dis 10 %
American Lock Co..............................dis 33⅓ %
Plate...dis 25 %
Pad..................new list dis 50, and 2 % for cash
Barnes & Deitz................................dis 25 %
Yale Lock Co..................................dis 40 %
Sargent & Greenleaf...........................dis 20 %
Trenton } Branford } Norwich } Russell & Erwin } Norwalk } Nashua } Mallory, Wheeler & Co. } P. & F. Corbin } Parker & Whipple } Jacobus & Nimick Mfg. Co. } New list dis 45 %. 2 % extra for cash.
Mallets.
Hickory and Lignumvitæ........................dis 20 %
Meat Cutters.
Dixon's (P. S. & W.)..........................dis 10 %

No.	1	2	3	4
℔ doz	$14 00	$17 00	$19 00	$30 00

Hales'..dis 25 %

No.	11	12	13
℔ doz	$27 00	$33 00	$42 00

Miles Challenge...............................dis 20 %

No.	1	2	3
℔ doz	$22·00	$30·00	$40 00

Perry's Champion (P. S. & W.).................dis 10 %

No.	200	300	400
℔ doz	$22 00	$27 00	$40 00

Woodruff's (P. S. & W.).......................dis 10 %

No.	100	150
℔ doz	$15 00	$18 00

American..............................dis 25 @ 25&5 %

No.	1	2	2½	3	4	B	5
Each	$6·00	$9·00	$12·00	$15·00	$30·00	$60·00	$75·00

Molasses Gates.
Stebbins'.....................................dis 65&10 %
Tinned ends...................................dis 40&10 %
Patent Self-Measuring........per doz $42 00—dis 20 %
Bush's..dis 20 %
Lincoln's.....................................dis 50&10 %
Mortars and Pestles.
Iron..net
Mouse Traps.
Wood Choker.................℔ doz holes. 16 @ 18c
Round, Wire...............℔ doz $1 50 to 2 00 net
Square, " ....℔ doz 2 00 to 2 50 net
Cage, " ....℔ doz 2 50, dis 10 %
Mowers, Lawn.
Excelsior.....................................dis 25 %
Nails...........................See Trade Report
Nail Pullers.
Capewell's Giant.................per doz $30 00 net
Nuts and Washers.
Nuts....................large, 6c; small, 8c off list.
Washers.................large, 8c; small, 10c off list.
Oil Stones.
Washita No. 1...............................℔ ℔ 22c
Washita Slips...............................℔ ℔ 45c
Washita No. 2...............................℔ ℔ 17c
Arkansas....................................℔ ℔ 1 25
Hindostan.......................℔ ℔ 6c dis 10&10 %
" Slips.........................℔ ℔ 10c dis 10&10 %
Oilers.
Miller's Zinc.................................dis 30 %
" Brass and Copper............................dis 25 %
Olmsted's.........................new list dis 25&10 %
Broughton's...................................dis 25&5 %
Malleable.....................per doz $5 00 dis 10 %
Common Tin....................................dis 30&10 %
" Zinc..dis 30&10 %
" Brass and Copper............................dis 30&10 %
Prior's.......................................dis 30&10 %
Ox Shoes.
Concave.....................................℔ ℔ 13c net
Ox Balls..................................dis 60&10 %
Pencils
Rope's Carpenters'............................dis 30&10 %
Dixon's Lead........................℔ gross $4·50 net
" Lumber............................℔ gross 9·00 net
Picture Nails and Knobs.
Brass Head....................................dis 60&10 %
Richards' Patent..........................dis 40 @ 40&10 %
Judd's..dis 60&10 %
Pinking Irons.......per doz $2 75—dis 65 %
Planes.
Auburn Tool Co.'s.............................dis 30&10 %
Ensenore, Bench...............................dis 50 %
Chapin's, 1st quality.........................dis 25&10 %
Chapin's 2d quality...........................dis 33⅓&10 %
Greenfield Tool Co............................dis 25&10 %
"New York"....................................dis 40 %
Sandusky Tool Co., 1st quality................dis 35 %
" " 2d " (Ogontz).............................dis 50 %
Ohio Tool Co., 1st quality....................dis 35 %
" " 2d quality (Sciota).......................dis 50 %
Owasco Tool Co., 1st quality..................dis 35&10 %
" " 2d quality................................dis 50 %
Howland's, 1st quality........................dis 30&10 %
2d quality (Cayuga)...........................dis 4 &10 %
Bailey's Patent Adjustable....................dis 20&10 %
Plane Irons, Butcher's........$5 50 to £ gold—new list
" Auburn Tool Co.'s...........................dis 25 %
" Chapin's....................................dis 10&10 %
" Greenfield Tool Co..........................net list
" Ohio Tool Co................................dis 10 %
" Spear & Jackson's...5 50 to £ gold—new list
" Sandusky Tool Co............................dis 10 %
Plow Bits, Greenfield Tool Co.................dis 10 %
Pliers.
Button's Patent...............................dis 33⅓ %
Plumbs and Levels.
Chapin's......................................dis 66⅔&10 %
Standard Rule Co.'s New Adjustable............dis 60&10 %
Standard Rule Co.'s Non-Adjustable.........dis 60&10&10 %
Stanley R. & L. Co.'s Pat. Adjustable.........dis 60&10 %
" " " Non-Adjustable....................dis 60&10&10 %
Pocket Levels.................................dis 50&10 %
Johnson's Patent Adjustable...................dis 60&10 %
Pulleys.
Hot House and Tackle..........................dis 60&10 %
Jap'd Screw...................................dis 60&10 %
Brass Screw...................................dis 60&10 %
Jap'd Side....................................dis 60&10 %
" Clothes Line................................dis 60&10 %
Hay Fork..................per doz $4 50 @ 5 00, dis 10 %
Pumps.
Douglas Cistern, etc..............new list dis 25 %
" S. & F..........................new list dis 20 %
Union Mfg. Co's Cistern and Pitcher...........dis 25 %
" " " Rams....................................dis 20 %
" " " Garden Engines..........................dis 10 %
Cucumber (Burlingham & Purdy)—
6 ft. No. 3, with 12 ft. pipe.................$4·00 net
6 ft. No. 1, with 12 ft. pipe.................4·50 net
From 6 to 36 ft. add 20 cents per ft.
Pipe, 8c. per ft.; Coupling, 20c. per ft.
Punches.
Belt or Drive.................................dis 25 %
Spring..dis 20 %
Rail, Sliding Door.
Wrought Brass.......................℔ ℔ 44c., dis 10 %
Iron, Painted.................................dis 10&10 %
Rakes.
Cast Steel....................................dis 30 %

$8 00	9 00	10 00	11 00
8	10	12	14 teeth.

Malleable.....................................dis 30 %

$5 00	5 50	6 00	6 50
9	11	13	15 teeth.

Razor Straps.
Evan's..dis 25&10 %
Genuine Emerson (B. F. Badger).................dis 25 %
Imitation Emerson...............℔ doz $2·75—dis 35 %
Hunt's..dis 35 %
Chapman...............................dis 10 @ 15 %
Torrey's......................................dis 10&10 %
Saunder's.....................................net
Rivets.—Old Colony.
Iron and Tinned...............................dis 30 %
In bulk.......................................dis 7½ %
Copper Rivets and Burrs..............new list dis 25 @ 35 %
Rivet Sets.................................net
Rods.
Stair............................new list dis 33⅓ %
American Patent...............................dis 30 %
Rollers.
Barn Door....................revised list dis 60, 10&10 %
Novelty.......................................dis 10 %
Rope. Manufacturers' List.
Manila......................½ inch and larger ℔ ℔ 15 c
" ....⅜ inch ℔ ℔ 15½c
" ....¼ and 5-16 inch ℔ ℔ 16 c
" Lath Yarn, Fine Tar'd.....................℔ ℔ 16 c
" Hay Rope...................................℔ ℔ 15½c
Sisal.......................½ inch and larger ℔ ℔ 11½c
" ....⅜ inch ℔ ℔ 12 c
" ....¼ and 5-16 inch ℔ ℔ 12½c
" Hay Rope...................................℔ ℔ 12 c
Rules.
Chapin's Boxwood..............................dis 66⅔&10 %
" Ivory.......................................dis 50&10 %
Hubbard & Curtiss Mfg. Co.....................dis 60&20 %
Stanley Rule and Level Co.'s Ivory............dis 50&10 %
" " " Boxwood....dis 60&10&10 %
Standard Rule Co.'s Boxwood................dis 60&10&10 %
" " " Ivory...................................dis 50&10 %
Sad Irons.
....℔ ℔ 4c net
Sad Iron, Nickel Stand attached.............℔ ℔ 9c
Sand Paper................................dis 15 %
Beader & Adamson's (Flint) 00 to 1½.....$4 25 ℔ ream
" " " 2, 2½ & 3..........4 75 "
Assorted...............................4 25 "
Star...................................℔ ream $3 25
Emery.........................℔ ream $6 50 @ 11 50
H. B. & M. Roman Flint........................dis 15 %
Cowdin Mfg. Co........................dis 7½ @ 10 %
Diamond Flint, 00 to 1½................per ream $4 25
" " 2, 2½, 3 and assorted..............." 4 75
" Emery Paper...............per ream $6 50 to $11 50
Sash Cord.
Common............................℔ ℔ 20 @ 22c. net
Silver Lake Flax..............................℔ ℔ 55c. net
" " Cotton....................................℔ ℔ 65c. net
Sash Locks.
Clark's, Nos. 1 and 2.........................dis 33⅓ %
Ferguson's....................................dis 33⅓ %
Norwich.......................................dis 15 %
Walker's......................................list net
Sash Weights.
Solid Eyes....................................℔ ℔ 2½c
Sausage Fillers.
Perry's (P. S. & W.)..........................dis 15 %

No.	1	0
℔ doz	$15 00	$21 00

Sausage Stuffers.
Miles.........................℔ doz $20—dis 10 %
Stow...........℔ doz No. 1, $15; No. 0, $21—dis 10 %
Saw Frames................................dis 10&10 %

Saw Rods..............$10 list, dis 10&10 %
Saws.
Spear & Jackson's oldpattern..........$4 50 to £ gold
Spear & Jackson's American Pattern....$3·55 to £ gold
John Spear............................$3 60 to £ gold
Am. Saw Co....................................new list
Perforated Cross Cuts, all kinds............68c ℔ foot
Inserted Tooth................................dis 10 %
All else......................................dis 12½ %
Disston's Circular............................dis 20 %
" Mill..dis 25 %
" Cross Cut...................................dis 15 %
" other kinds.................................dis 12½ %
Livingston's Framed Wood......................dis 10 %
Livingston's Butcher and Kitchen..............dis 10 %
H. W. Peace's Circulars.......................dis 10 %
Other kinds...................................dis 10 %
Wm. McNiece's Hand, Cross Cut and Circular........................new list dis 15 %
Wm. McNeice's Patent Pole Pruning Saw.........dis 10 %
" " " Compass Saw..............................net.
E. M. Boynton's Lightning......dis 40 % for immediate cash
" " Others....................................dis 15 %
Wheeler & Clemson Mfg. Co.'s Hand.............dis 15 %
" " " Cross-Cut.............................dis 30 %
Saw Sets.
Stillman's Genuine.............℔ doz $5·00—dis 10 %
" Imitation...................℔ doz $3·25—dis 10&10 %
Aiken's Pattern................℔ doz 7·00—dis 25 %
Hart's Patent.................................dis 15 %
Nash's..dis 20&10 %
Bemis'..dis 10 %
Aiken's Genuine................℔ doz $15·00—dis 25&10 %
Hotchkiss'.....................℔ doz 5·50—dis 10 %
Common Lever...................per doz $2 00—dis 10&10 %
Leach's.......................................dis 15 %
Scales.
Hatch...dis 25 %
Tea...dis 25 %
Turnbull's....................................dis 20 %
Brown's.......................................dis 25&5 %
Fairbanks'.......................new list dis 15 @ 20 %
Howe's..dis 15&5 %
Shattuck's Counter and Union..................dis 15 %
Chatillon's Grocers'..........................dis 25 %
Eureka..dis 25 %
Scale Beams...................................dis 25&10 %
No. 1 800 to 1200 lbs.........................90c ℔ cwt
No. 2 " " ....75c ℔ cwt
Scrapers.
Box, 1 Handle....................per doz $6·25, dis 10 %
" 2 " ....per doz 7·50, dis 10 %
Foot..dis 60 & 10 %
Ship (common).......................per doz $3 00 net
Ship—Providence Tool Co.......................dis 10 %
Screws.
American list of Jan. 1, 1874.
Flat Head Iron................................dis 52½ %
Round Head Iron...............................dis 50 %
Flat Head Brass...............................dis 52½ %
Round Head Brass..............................dis 50 %
Round Head Silver Capped......................dis 35 %
Hand Rail.....................................dis 55&10 %
Coach or Lag...........................dis 30&10 @ 40 %
Coach, Patent Gimlet Point....................dis 15 %
Bed...list net
Japanned......................................dis 40 %
English—Nettlefold & Chamberlain's Flat Head Iron.................................dis 52½&10 %
Machine—Flat Head, Iron.......................dis 60 %
" " Brass.....................................dis 10 %
Round Head, Iron..............................dis 55 %
" " Brass.....................................net
Bench—Iron.............................dis 60, 10&10 %
" —Wood.......................................dis 15 %
Hand..dis 25&10 %
Jack—Bell Bottom..............................dis 15 %
Scythes.
Blood's German Steel, Grass.................℔ doz $9 00
" Cast " " ....℔ doz 10 00
" Silver " " ....℔ doz 11 00
" German " Grain..............................℔ doz 13 00
" Cast " " ....℔ doz 14 00
" Red Rover...................................12 00
" Young America...............................9 50
" Silver Clipper..............................12 63
Scythe Snaths.................................dis 20 %
Sieves.—Mann's Patent.....................dis 25 %
Shears.
Cast Steel....................................dis 65&10 %
Cast Iron.....................................dis 25&10 %
Seymour's.....................................dis 60&10 %
Shovels and Spades.
Ames.............................new list dis 12½ %
Rowland's.....................................dis 25 %
Old Colony.......................new list dis 10&5 %
Middleboro' Shovel Co...........new list dis 12½ %
Dunning's.....................................dis 20 %
Shovels and Tongs.
Iron Head.....................................list net
Brass Head....................................dis 5 %
Polished Steel...................new list dis 15 %
Skates.
Barney & Berry's..............................dis 25 %
N. Y. Club.................................℔ pair $2·75
B. & B. Club.................................." 3·50
All Clamp...................................." 4·25
Rink..." 8·00
Florence Club...............per pair $3·50—dis 25 %
" Steel.............................per doz $9 net
Slates.
Square Frames, Round Cornered, by case......dis 65&10 %
Less than a case..............................dis 65 %
Oval Frames, by case..................dis 40 @ 40&10 %
Less than a case..............................dis 30 %
Spoke Shaves.
Iron..dis 33⅓&10 %
Wood..dis 30 %
Bailey's......................................dis 10&10 %
Spoons.
Iron..........................new advanced list, dis 10 %
By the case...................................dis 20 %
Britannia.....................................dis 45&10 %
Rogers & Bro., A 1.....................dis 40, 10&5 %, cash
Derby Silver Co...............................dis 50 & 5 %
Holmes, Booth & Haydens.......................dis 50&10 %
Nickel Silver Co..............................dis 40&10 %
German Silver.........................revised list dis 30 %
Tinned (P. S. & W.)—
Teas................................$1·50 ℔ gross, net
Tables..............................2·75 " net
Stocks and Dies.
....dis 15 %
Stove Polish.
Gem.............................℔ gross $5 00, dis 15 %
Joseph Dixon's......................℔ gross, 6 00
Gold Medal......................℔ gross $6 00 dis 15 %
Squares.
Steel......................dis 50 %; full cases, dis 50&10 %
Iron.......................dis 50 %; full cases, dis 50&10 %
Nickel Plated...............add $2 50 @ $4 00 ℔ doz net
Try Squares and T Bevels......................dis 45&10 %
Star Try Squares and Bevels...................dis 30 %
Tacks.
Full Weight American Iron.....................dis 45&7½ %
Half Weight American Iron.....................dis 72½&7½ %
Carpet, new list..............................dis 7½ %
Brads American Half Weight....................dis 50&7½ %
Finishing Nails........ ½ ⅝ ¾ 1 1¼ in. and over
℔ ℔.................... 25c 20c 18c 14c 12c dis 7½ %
Trunk and Clout........ ½ ⅝ ¾ 1 1¼ in. and over
℔ ℔.................... 25c 20c 18c 14c 12c dis 7½ %
Copper Tacks........................℔ ℔ 50c—dis 7½ %
Iron Shoe Nails, ℔ ℔ 4-8 and longer, 9½c; 3½-8, 10c...dis 7½ %
Double Pointed..................new list dis 33⅓&10 %
Tapes, Measuring.
American Flask and Cap Co.....................dis 20 %
Eddy's..dis 20 %
Thermometers.
Tin Case......................................dis 50&5 %
Toe Calks.
....℔ ℔ 13c net
Tobacco Cutters.
Champion......................................dis 20 %
Peck, Stow & Wilcox...........................dis 10 %
Morse's.......................℔ doz $12·00—dis 10&10 %
Wood Bottom...................per doz $12—dis 33⅓ %
All Iron......................per doz $12—dis 35&10 %
Tinners' Tools and Machines.
P. S. & W.....................................list net
Traps.
Newhouse......................................dis 20 %
Hotchkiss.....................................dis 20&10 %
Peck, Stow & Wilcox...........................dis 30 %
Blake's Patent...................new list dis 25 %
Trowels.
Lothrop's Brick and Plastering................dis 10 %
Disston's Plastering..........................dis 12½ %
Disston's Brick...............................dis 12½ %
Rose's Brick..................................dis 5 %
Brades' Brick.............................gold. dis 10 %
Worrall's Brick and Plastering................dis 20 %
Garden..dis 25 %
Triers.
Butter and Cheese.............................dis 25 %
Ventilators, Double Cone.
Keystone Portable Forge Co....................dis 25 %
Vises.
Trenton Vises, Solid Box.
30 to 160 lbs.................................16c
160 and over..................................19c
Peter Wright's.......................℔ ℔ 15½c. gold
Wilson's Solid Box............................dis 15 %
39 to 160 lbs.................................18c
160 and upward................................22c
Wilson's Parallel.............................dis 30 %
Backus & Union, Parallel......................dis 25 %
Buffalo, Parallel................new list dis 25 %
Fisher & Norris' Double Screw Parallel.......dis 15&10 %
Trenton Parallel..............................dis 15 %
Merrill's Parallel............................dis 15 %
Parker's......................................dis 20 %
Stephens' Parallel....................dis 15 @ 20 %
Bonney's Saw Filers...........................dis 20 %
Stearn's Saw Filers...........................dis 30 %
Wheel Barrows.
Pugsley & Chapman.............................dis 25 %
Wheel Heads.
Brass Bushed....................per doz $3 50 net
Well Wheels.
Revised list..................................dis 60&10 %
Wire.
Brass and Copper..............................dis 10 %
Bright and Annealed...........Nos. 0 @ 18 dis 40 @ 45 %
" " ...." 19 @ 26 dis 50 @ 55 %
" " ...." 27 @ 36 dis 55 @ 60 %
Coppered......................" 0 @ 18 dis 30 @ 32½ %
Galvanized, Nos. 0 to 6..........market list net @ dis 5 %
Galvanized, Nos. 7 to 18.......market list dis 10 @ 15 %
Tinned..dis 25 @ 30 %
Cast Steel....................................15 @ 20 %
Tinned Broom Wire.............................dis 25 @ 30 %
Galvanized Telegraph, Nos. 8 and 9.........℔ ℔ 9c @ 10c

Galvanized Telegraph. Nos. 10 and 11...℘ ℔ 10½c @ 11¼c
" " " 12.........℘ ℔ 10½c @ 11½c
Annealed Fence. Nos. 8 and 9.......dis 40 @ 45 %
" Grape, " 10 to 14.......dis 40 @ 45 %
Fence Staples.......℘ ℔ 8 @ 8½ %
Stubs' Steel Wire.......$7 00 to £ gold
Judd's Picture Wire.......dis 50 %

Wrenches.
American Adjustable.......dis 45 %
Baxter's Adjustable "S".......dis 20 %
" Diagonal.......dis 20 %
Collins & Co.'s.......dis 45 %
Coes' Genuine.......dis 40&5 %
" Pattern (Wrought).......dis 50 %
" " (Malleable).......dis 60&10 %
Lindsay's Patent.......dis 25 %
Taft's Pattern.......dis 70 %
Davis' Patent Duplex.......new list dis 25 %
Bemis & Call's Patent Combination.......dis 20&5 %

Wringers.
Providence.......℘ doz $58 00
"Reliance" (P. T. Co.).......℘ doz 58 00
Universal—Extra.......℘ doz 58 00
Novelty.......℘ doz 58 00
Sherman.......℘ doz 58 00
Reliance.......℘ doz 58 00
Monitor.......℘ doz 58 00
King.......℘ doz 58 00
Crown.......℘ doz 58 00
Eureka.......℘ doz 58 00
Independent.......℘ doz 58 00

TIN WARE AND TRIMMINGS.

STAMPED TIN WARE. dis 10 %.
COMMON STAMPED WARE, &C.

Bucket Covers.

Quarts	½	1	2	3	4
Inch	4½	5 3-16	6 5-16	6¾	7 11-16
Per gross	$2·00	2·60	3·40	4·25	5·75
Quarts	6	8	10	12	
Inch	8¾	9¼	9¾	10 9-16	
Per gross	$7·00	8·00	8·50	11·50	

Cake Box Covers.

	Small.	Medium.	Large.
Inch	11½	12¼	13¼
Per gross	$15·00	18·00	22·00

Pot Covers.

Inch	7¾	8¼	8¾	9¼	9¾	10¼
Per gross	$5·75	6·00	6·25	6·75	7·25	8·25
Inch	10¾	11¼	11¾	12¼	12¾	13¼
Per gross	$8·75	9·50	10·00	13·00	13·75	16·50

Pie, Dinner or Scolloped Plates.

Inch	6	7	8	9	10	11
Per gross	$4·00	·50	6·00	6·50	8·50	10·50

Deep Pie Plates.
Inch.......9 ... 10
Per gross.......$8·50 ... 10·50

Jelly Cake Pans.
Inch.......9 ... 10
Per gross.......$7·50 ... 10·00

Coffee Pot Covers.

Plain	1½	2	3	4	5	6 qts.
Inch	3	3⅜	3¾	4½	5	
Per gross	$1·15	1·40	1·60	2·00	2·75	3·00
Rimmed	2¾	3	3¼	4	4½ inches.	
Per gross	$2·25	2·50	3·00	3·50	4·00	

T. K. Breasts only.

Inch	7½	8	8½	9	9½	10	10½	11	11½
Per gro.	$6·00	6·50	6·75	7·25	7·75	9·50	10·00	12·00	13·00

Grater Plates.
Sheet....... ¼ ... ½ ... 1
Per gross.......$3·00 ... 6·00 ... 11·50

Scolloped Cake Pans.

	Small.	Large.
Without Tubes.......per gross,	$8·00	11·50
With Tubes....... "	10·50	14·00

Stamped Square Pans.
No....... ½ ... 1
Per gross.......$7·50 ... 14·50

Common Square Pans (One Sheet).
Per gross.......$12·50

Milk Skimmers (Plain or Pierced).
Per gross.......$4·00

Lettered Plates.
Inch....... 5½ ... 6
Per gross.......$3·25 ... 4·00

Steamer Bottoms.
Add $1 per gross, or 10c. per doz. to list of Pot Covers.

Tin Stove Pipe Rings.

Inch	4	4½	5	5½	6	7
Plain.......per gro.	$4·50	5·00	5·50	6·00	6·50	7·50
Jap'd or Burn'd	6·00	6·50	7·00	8·00	8·50	10·00

Coffee Boiler Lips.

	Small.	Large.
To Rivet.......per gross,	$0·80	1·10
To Solder....... "		1·25

Plain Stamped Water Dippers.

	½ pint.	Pint.	Quart.	2 quarts.	2½ quarts.
Per doz	·90	1·15	1·50	1·85	2·50

RETINNNED WARE, dis 25 %.

Retinned Milk Pans.

Qts.	½	1	1½	2	3	3½	4	5	6	8	10	12
℘ doz.	1·20	1·50	1·75	2·00	2·25	2·75	3·15	3·50	3·85	4·75	5·25	5·75

Dipper Bowls, Plain Stamped.......dis 20 @ 25 %
Pints....½ ... 1 ... Quarts.... 1 ... 2 ... 2½
Per doz. ·50 ... ·75 ... Per doz... 1·00 ... 1·25 ... 1·75
Dipper Bowls, Retinned.......dis 20 @ 25 %
Pints....½ ... ¾ ... 1 ... Quarts.... 1 ... 2 ... 2½
Per doz. ·75 ... ·95 ... 1·05 ... Per doz .. 1·10 ... 1·75 ... 2·25

Pans.
Dish Pans, Tinned.......dis 20 @ 25 %

Quarts	7	8	10	14	17	21	30
Per doz.	8·50	9·50	11·00	13·00	16·00	19·00	30·00

JAPANNED TIN WARE.

Cannisters, Common.......dis 10 %
Pound....... ½ ... 1 ... 2 ... 3
Per doz.......$1·10 ... 1·60 ... 2·50 ... 3·25
Canisters, Hinged.......dis 10 %
Pound....... 1 ... 2
Per doz.......$1·75 ... 2·75 ... 3·40 ... 3·75 ... 4·50
Candlesticks, Japanned.......dis 10 %
No....... 1 ... 2
Per gross.......$8·00 ... 7·00
Cake Bo[xes] Round.......per nest, $2·25, dis 10 %
" Square.......per nest, 4·25, dis 10 %
Chamber Pails, Japanned (Smith, Burns & Co.)...dis 10 %
Nos....... 2 ... 3 ... 4 ... 5
Green, per doz.......$8·00 ... 9·00 ... 10·50 ... 12·50
Oak " ....$9·50 ... 10·50 ... 12·00 ... 13·50
Dust Pans, Corrugated.......per gross, $22·00, dis 10 %
Box Graters.......per gross, $4·00, dis 10 %
Molasses Cups.......dis 10 %
Pint....... ½ ... 1 ... 2
Per doz.......$1·25 ... ·50 ... 2·7
Lunch Boxes, per doz......7 in $2·00; 8 in. $2 50; dis 10 %
Pepper Boxes Japanned.......dis 10 %
Per gross.......Small, $3·00; Large, $4·00
Toy Banks, House.......dis 10 %
Tea Trays, American Tea Tray Co.......dis 15 %
No....... 1 ... 2
Per gross.......$7·00 ... 5·50
Toy Banks Gothic.......dis 10 %
No....... 1
Per gross.......$5·50
Toy Cups, Straight.......dis 10 %
No....... 1 ... 2 ... 3
Per gross.......$4·00 ... 3·50 ... 3·5
Toy Cups, Flaring...No. 1, $4·25; 2, $3·70 ℘ gross, dis 10 %
Toy Pails, Covered.......dis 10 %
No....... 1
Per gross.......$4·50
Toy Rattles.......per gross, $2·25, dis 10 %
Trunks. Wire Handled.......per nest (5) $1·50, dis 10 %
Spittoons, Tin....per gross. No. 2, $30, No. 3, $27, dis 10 %

PLANISHED TIN WARE.

Planished Coffee Pots, Round.......dis 25 @ 30 %

Each	·60	·75	·85	·95	1·15	1·25	1·30	1·40
Pints	1	2	3	4	5	6	7	8

Planished Tea Pots, Round.......dis 25 @ 30 %

Each	·70	·80	·95	1·05	1·25
Pints	2	3	4	5	6

Planished Tea Pots, Oval.......dis 25 @ 30 %

Each	·70	·80	·90	1·05	1·15	1·40	1·75
Pints	1	2	3	4	5	6	8

Planished Pepper Boxes, No. 1.......per doz., $1·52
Planished Flour Dredges, No. 3, $2·10; 4, 2·45 ℘ dozen.
Planished Round Coffee Biggins.......dis 25 %

Pints	2	3	4	5	6	8
Each	$1·00	1·10	1·20	1·40	1·60	2·00

Planished Oval Coffee Biggins.......dis 25 %

Pints	2	3	4	5	6	8
Each	$1·15	1·25	1·40	1·60	1·80	2·25

Planished Oval Chafing Dishes, Imperial Covers..dis 25 %

Inch	10	12	14	16	18	20	22	24
Each	$3·85	5·00	6·25	7·60	9·00	11·50	15·00	16·50

Planished Oval Chafing Dishes, Low Covers.......dis 25 %

Inch	10	12	14	16	18	20
Each	$3·25	4·35	5·20	6·20	7·80	9·25

Planished Low Dish Covers.......dis 25 %

Inch	10	11	12	14	16	18	20
Each	$·70	·80	1·0[illegible]	[illegible]	1·[illegible]0	2·00	2·75

Planished Imperial Dish Covers.......dis 25 %

Inch	10	11	12	14	16	18	20	22	24
Each	$1·55	1·70	2·00	2·60	3·15	3·45	4·60	5·45	6·30

Planished Etnas, on Stands.......dis 25 %

Pints	1½	2	3	4	5
Each	$0·90	1·00	1·20	1·50	1·75

Planished Liquor Mixers.......dis 25 %

Nos.	0	1	2
Per doz.	$2·00	2·10	2·45

Planished Oval Melon Molds.......dis 25 %

Nos.	2	3	4	5	6	7	8	9
Each	$·60	·65	·70	·80	·90	1·00	1·15	1·35

Planished Oval Tumbler Warmers.......dis 25 %
To fit 1, 2, 3, and 4 O. G. Urns.......each, $2·50
Planished Oval O. G. Urns.......dis 25

Nos.	0	1	2	3	4	5	6	7	8
Each	$4·90	5·45	6·30	7·00	7·75	9·25	11·25	12·50	15·50

Planished Round Urns.......dis 25 %

Nos.	0	1	2	3	4	5	6	7
Each	$4·20	4·85	5·45	6·30	7·75	9·00	11·00	14·25

Planished Round Oyster Dishes, (Complete).......dis 25 %
Nos....... 1 ... 2
Each.......$2·10 ... 2·80
Planished Oyster Dish Plates.......dis 25 %
Nos....... 1 ... 2
Each.......$0·25 ... 0·30
Oyster Dish Covers.......dis 25 %
Nos....... 1 ... 2
Each.......$0·30 ... 0·35

Tea Pot Handles—P. S. & W.......dis 20 %
Stow's Patent Hollow Tea Pot Handles.
No. 1, Small 4½ inches.......per gross, $11·50
No. 2, Medium, 5¾ " .... " 12·50
No. 3, Large, 6¾ " .... " 13·50
No. 4, Ex. Large, 7¾ in., for Wash Pitchers &c .... " 18·00
Stow's Patent. New Pattern.
No. 25, Small, 4½ inches.......per gross, $11·50
No. 35, Medium, 5¾ " .... " 12·00
No. 45, Large, 6¾ " .... " 13·00
Solid Iron. Tin Tipped.
No. 10, Small, 4¾ inches.......per gross, $9·00
No. 15, Medium, 5¾ " .... " 9·50
No. 20, Large, 6¾ " .... " 10·75
Stow's Patent Hollow Tea Pot Handles, Adamantine Bronze—P. S. & W.
No. 12, Bronzed and Tin-Tipped.......per gross, $13·50
Saucepan Handles. Or Best Malleable Iron.
P. S. & W.......dis 20 %

Japanned.
No. 1, 5½ inches long.......per gross, $3·50
No. 2, 6 " .... " 3·75
No. 3, 6½ " .... " 4·00
No. 4, 7½ " .... " 4·25
No. 5, 8 " .... " 4·50
No. 6, 9 " .... " 4·75
Tinned.
No. 1, 5½ inches long.......per gross, $4·25
No. 2, 6 " .... " 4·50
No. 3, 6½ " .... " 4·75
No. 4, 7½ " .... " 5·25
No. 5, 8 " .... " 5·50
No. 6, 9 " .... " 5·75
Japanned.......per lb., ·16
Tinned....... " ·20
Iron Kettle Ears (P., S. & W.).......dis 45 %
Half gross pairs in a package.

Tinned.

Nos.	1	2	3	4	5	6	7	8
Per gross pairs	88c	$1·00	1·50	1·75	2·10	2·75	3·50	4·75

Black.

Nos.	1	2	3	4	5	6	7	8
Per gross pairs	75c	88c	$1·35	1·50	1·75	2·25	2·75	4·00

Tinned Tea Kettle.

Nos.	4	5	6
Per gross pairs	$1·75	2·10	2·75

Extra Heavy Tinned Kettle Ears—French Pattern.

Nos.	1	2	3	4	5	6	7
Per gross pairs	$1·00	1·25	1·50	1·75	2·25	2·75	3·50

Malleable Iron Kettle Ears for Coal Hods, &c.
P., S. & W.......dis 20 %
No. 10 Small.......℘ ℔, Tinned, 20c; Black, 16c
No. 20 Medium.......℘ ℔, " 20c; " 16c
No. 30 Large.......℘ ℔, " 20c; " 16c
No. 40 Extra Large.......℘ ℔, " 20c; " 16c
In cases of 100 lbs. each.
Milk Can or Boiler Handles—(P. S. & W.) 4½ in..dis 25
Plain, 8c.; Japn'd, 9c.; Tinned, 16c. per lb.; Malleable Clips or Ears to match, Tinned.......20c per lb.
Toilet Ware Handles—4½ inches (P. S. & W.).....dis 35 %
Plain with drilled holes, per lb.......9c
Plain with Cast " 8c
Plumbers' Scrapers—(P. S. & W).......dis 25 %
Extra quality, length 6 in., per doz.......$4·00

METALS.

IRON.—DUTY Bars, 1 to 1½ cents per lb., Sheet, Band, Hoop and Scroll, 1½ to 1¾ cents per lb. Provided, that none of the above Iron shall pay a less rate of duty than 35 per cent. Pig, $7 per ton; Polished Sheets, 3 cents per lb.; Wrought Scrap, $8 per ton; Cast Scrap, $6 per ton. All subject to a reduction of 10 per cent. Railroad, 70 cents per 100 lbs. Boiler and Plate, 1½ cents per lb.

Pig Iron—AMERICAN.
Foundry No. 1.......℘ ton, $27 00 @ 29 00
Foundry No. 2....... " 26 00 @ 27 00
Gray Forge....... " 23 00 @ 25 00
White and Mottled....... "

SCOTCH.
Coltness....... " 40 00 @ 42 00
Glengarnock....... " 39 00
Eglinton....... " 37 00
Summerlee....... "

Bar Iron.
Am. Refined, at mill.......nominal.......℘ ℔ 3c

Rails.
Welsh, gold.......℘ ton, 48 00 @ 50 00
American, at works, currency....... " @ 55 00
Old Rails, currency....... " 30 00 @

Scrap.
Wrought Scrap....... "

Bar Iron from Store.

Common Iron.
¾ to 2 in. round and square.......℘ ton, $ 65 00
⅞x9-16 in " " .... " 70 00
½ in. " " .... " 72 50
2¼ to 3 in. " .... " 70 00
1 to 6 in. wide x ⅜ and 1 in thick....... " 65 00
1¼ to 6 in wide x ¼ & 5-16 in. thick....... " 70 00
1 and 1¼ in. x ¼ and 5-16....... " 72 50
Swedish Iron.
1½x⅜ to ⅝....... " 140 00
1¼ to 5x⅜ to ⅞ and ½ to 1½ in. square....... " 135 00
6 to 7x⅜ and ½....... " 145 00
Refined Iron.
¾ to 2 in. round and square....... " 67 50
1 to 6 in. wide x ⅜ to 1 thick....... " 67 50
1¼ to 6 in. wide x ¼ and 5-16 thick....... " 72 50
1 and 1¼ x ¼ and 5-16....... " 72 50
Large Rounds.
2¼ to 2¾, round and square....... " 77 50
3, 3¼ and 3½ in....... " 82 50
3¾ and 4 in....... " 90 00
Rods—⅝ and 11-16, round and square....... " 70 00
½ and 9-16, " " .... " 72 50
7-16, " " .... " 80 00
⅜, " " .... " 85 00
5-16, " " .... " 92 00
¼, " " .... " 95 00
3-16, " " .... " 127 50

Sheet Iron.

	Common American and English.	R. G. American.	R. G. English.
Nos. 10 to 20.......℘ ℔	4½ @ 4¾c	5½c	5¾c
21 to 24....... "	4¾ @ 5c	6c	6c
25 to 26....... "	5c	6c	6c
27....... "	5¼c	6c	6c
28....... "	5½c	6c	6c

Galvanized, 1 to 20, prime, ℘ ℔ 10; 2d quality...℘ ℔ 9c
" 21 to 24 " " 11 " ... " 10c
" 25 to 26 " " 12 " ... " 11c
" 27 " " 13 " ... " 12c
" 28 " " 14 " ... " 13c
Patent Polished....... " 15 @
Russia, Nos. 8 to 16.......℘ ℔ 18c
" Stained, No. 1.......℘ ℔ 11c
Belgian....... " 12c
One piece Corrugated Sheet Iron Elbows.

CHARCOAL IRON

4½	5	5½	6	7 inch.
$2·50	3·50	4·50	5·25	6·50 per doz.

RUSSIA IRON.

5	5½	6	7 inch.
7·00	9·50	12·00	14·00 per doz.

BABBITT METAL.
Excelsior.......cash, dis 10 %
No....... 1 ... 2 ... Extra.
10c ... 12c ... 15c ... 20c @ 25c

COPPER—DUTY: Pig, Bar and Ingot, 5c.; old copper, 4 cents ℘ ℔; Manufactured (including all articles of which copper is a component of chief value) 45 % ad valorem. All subject to a reduction of 10 per cent.
American Ingot.......℘ ℔ 21½c
English " ....

SHEATHING, BRAZIERS COPPER, BOLTS, &C.
Braziers Copper, ordinary sizes, over 16 oz., per square foot.......33c ℘ ℔
Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., per square foot.......35c. "
Braziers Copper, 12 oz. per square foot and lighter.39c. "
Circles less than 84 inch in diameter.......35c ℘ ℔
Circles, 84 inch diameter and over.......39c. "
Segment and Pattern Sheets.......35c. "
Locomotive Fire Box Sheets.......33c. "
Sheathing Copper, over 12 oz. per sq. ft.......31c. "
" " 12 oz. ℘ sq. ft. and lighter... 39c. "
Bolt Copper.......33c. "
Copper Bottoms, 32 @ 33c. ℘ ℔.......net
No Copper is Sheathing except 14x48 inches, and not to exceed 34 oz. to the square foot.

O'NEILL'S PATENT PLANISHED COPPER.
14x48.
14 and 16 oz. and heavier.......36c. By the case, 35c. ℘ ℔
12 oz. and lighter.......39c. " " 38c. "
Boiler Sizes.
7 in., 14x52. 8 in., 14x56. 9 in., 14x60
14 and 16 oz. and heavier.......38c. By the case, 37c. ℘ ℔
(And all sizes not over 20 inches wide.)
30x60
14 and 16 oz. and heavier.......40c. ℘ ℔
12 oz.......43c. "

TINNING.
14x48, by the case.......8c. ℘ sheet
14x48, less than case.......10c. "
Boiler Sizes, 7 and 8 inch.......12c. "
" 9 inch.......15c. "
Other sizes not larger than 30x60.......2½c. ℘ sq.
Larger than 30x60.......5c. "

LEAD—DUTY Pig $2 per 100 lbs.; old Lead, 1½ cent per lb.; Pipe and Sheet, 2½ cents per lb. All subject to a reduction of 10 per cent.
Spanish.......6½ @ 6¾c gold
German Refined.......6½ @ 6¾c gold
English.......6½ @ 7c gold
American.......6½ to 6¾c gold
Bar.......dis 10 %.......8½c.
Pipe.......dis 10 %.......8½c.
Tin Lined Pipe.......dis 10 %.......16½c.
Sheet.......dis 10 %.......8½c.
Shot.......dis 10 %. Drop, 8¾c.; Buck, 9¼c.

SOLDER.......No. 1. 15c; No. 2, 13½ @ 14c

STEEL—DUTY: Bars, Ingots, Sheets and Coils, valued at 7 cents per lb., or under, 2¼ cents; over 7 cents, and not above 11, 3 cents per lb.; over 11, 3¼ cents per lb. and 10 % ad val. Railway Bars 1¼ cents per lb. Railway Bars, in part Steel, 1 cent per lb. All subject to a reduction of 10 per cent. Provided, that Metal cemented, cast or made from Iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as Steel.

American Cast Steel.
Tool.......15 @ 16c
Spring.......10c
Homogeneous.......12½c
Tire.......12¼ @ 13½c
Machinery (round and square).......10 @ 11c
File.......11c
Sheet.......14 @ 16c
Saw Plate, mill and mulay.......14 @ 16½c
Saw Plate, gang and X cut.......13 @ 14c
" circular as to size.......18 @ 30c

Chrome Steel.
Tool.......℘ ℔ 20 @ 21c
Tool, extra fine....... " 40 @ 75c
Spring.......℘ ℔ 12c and upward
Machinery.......℘ ℔ 14c.
Hammer....... " 15c.
Gun or Homogeneous....... " 16c

English Steel,—payable in gold, dis 5 % cash.
" Best Cast.......℘ ℔ 18c
" Extra Cast....... " 19c
" Round Machinery, Cast....... " 11½c
" Swaged, Cast....... " 18c
" Best Double Shear....... " 18c
" Blister, 1st quality....... " 13½c
" " 2d quality....... " 11½c
" " 3d quality....... " 10½c
German Steel, Best....... " 11½c
do 2d quality....... " 10½c
Sheet Cast Steel, 1st quality....... " 18c
" " 2d quality....... " 16c
" " 3d quality....... " 14c
File Steel, Flat and ½ Round....... " 12½c
" Square and Round....... " 18c
" Mill....... " 13½c
" Taper to 4 inch....... " 17c
" Taper 3 and 3½ inch....... " 18c

SPELTER—DUTY: In Pigs, Bars and Plates, $1 50 per 100 lbs.—less 10 per cent.
Silesian, cash.......6¾ @ 7c., gold
American " ....6¾ @ 11c.. currency

TIN—DUTY: Plates, Sheets, Tagger and Terne, 15 per cent. ad val.; Electro-galvanized Plates, 2 cents per ℔; Manufactures of, not enumerated, 35 per cent. ad val. —all subject to a reduction of 10 per cent. Bars, Block and Pigs, free. Banca, subject to duty of 10 per cent.
Banca.......℘ ℔ 25 @ 25½c., gold
Straits.......℘ ℔ 21¾ @ 22½c, gold
English.......℘ ℔ 21½ @ 22c., gold

CHARCOAL TIN PLATE.
I C 10x14, Prime Charcoal.......11·00 to 11·25
12x12, " ....11·75
14x20, " ....12·00
I X 10x14, " ....13·50
12x12, " ....14·00
14x20, " ....14·50
D C 12½x17 " ....10·75
D X 12½x17 " ....13·00
For each additional X add.......2·25

COKE TIN PLATE.

	Best	2d Quality.	Ordinary.
I C 10x14	$10·50 @ 11·00	9·50 @ 10·00	9·00 @ 9·50
I C 12x12	11·00	10·50	
I C 14x20	11·25	10·50	

TERNE PLATE.

	Prime Char.	2d qual.	Coke.
I C 14x20	$10·00 @ 10·25	9·25 @ 9·75	7·75 @ 8·50
I X 14x20	12·50		
I C 20x28	20·00 @ 21·00	19·00 @ 19·75	16·50 @ 18·00
I X 20x28	26·00		
I C 20x200 ft.	24·00		

ZINC.—DUTY: Pig or Block, $1 50 per 100 lbs. Sheet 2½c. ℘ ℔. All subject to a reduction of 10 per cent.
Sheet.......cask 9¾c
" ....open 10c

Paper Stock, Old Metals, &c.

(Dealers' Selling Prices.)
Canvas linen.......6½ @
" cotton. No. 1.......6¾ @ 7
" " No. 2....... @ 5
White linen rags, No. 1.......6 @ 6½
" " No. 2.......4¾ @
Colored.......2½ @
Mixed woolens....... @ 2½
Soft woolens....... @ 5½
Gunny bagging.......1¾ @ 2
Jute Butts.......2¼ @ 2¾
Kentucky bagging.......5¼ @ 5½
Book stock.......4 @ 4½
Waste paper and scraps.......1 @ 1½
Rope cuttings.......1½ @ 3
Kentucky Bale rope.......4 @ 4½
Oakum junk, No. 1.......5½ @ 5¾
" No. 2....... @ 4
Grass rope.......3½ @ 4
Tarred Shaking.......1½ @
White Collar Cuttings, all paper.......7 @
" " " muslin lined.......5 @
" Envelope ".......7 @
Hard White Shavings, No. 1.......6½ @
Soft " " No. 1.......6 @
White Shavings, No. 2.......5½ @ 6
Mixed Shavings, part white.......4 @ 4½
Imperfections, No. 2, best folded sheets.......5 @
" " 1, Heavy Stock.......4¾ @ 5
Book Stock, Mixed.......3½ @ 4
" " No. 2, light.......2 @ 2½
Prints.......1½ @ 2
Pure Manilas.......2
Bogus Manilas and Hardwares.......1 @ 1½
Commons.......1 @
Binders' Board Cuttings.......1¾ @ 2
Straw Board Cuttings.......1¼ @ 1½

Old Metal.
Copper....... @ 20
Yellow metal.......14 @ 15
Brass.......13 @ 14
Heavy Composition.......17 @ 18
Old lead, solid.......5¾ @ 6¼
Tea lead....... 4½
Wrought iron.......1½ @ 1½
Sheet iron.......0¾ @
Cast iron.......1 @ 1½
Machinery iron.......1¼ @
Zinc.......
Pewter, No. 1.......17
" No. 2.......10 @ 12
Spelter.......5½ @ 6

Paints, Oils, etc.

Paints.
Black, lamp—Coach Painters.......℘ ℔ 20c
" " Ordinary.......6c
" Ivory Drop, fair.......15c
" " best.......26c
Black Paint, in oil.......kegs, 8c.; asst'd cans, 11c
Blue, Prussian, fair to best.......50 @ 75c
" " " " in oil.......35 @ 65c
" Chinese, dry.......83c
" Ultamarine.......25 @ 30c
Brown, Spanish.......1¼c
" Van Dyke.......9c
Carmine, 40.......$12 00
Green, Chrome.......15 @ 23c
" " in oil.......18 @ 25c
" Paris.......good, 30c; best, 40c
" " in oil....... " 30c " 45c
Mineral Paints.......1¼ @ 4c
Orange Mineral.......14½c
Red Lead, American.......9½c
" " English.......10½c
" Venetian (N. C.) dry.......2½c
" " in oil.......asst'd cans, 11c; kegs, 8½c
" Indian, dry.......10c
Rose Pink.......13c
Sienna, American, Raw.......4c
" Burnt.......4½c
" " in oil.......16 @ 26c
" Raw " ....15 @ 25c
Umber, Burnt.......4 @ 8c
" " in oil.......16 @ 21c
" Raw.......3½ @ 7½c
" " in oil.......16 @ 22c
Vermillion, Chinese.......
" English.......1 98
" Trieste.......1 65
" American, Common.......23c
White Lead, American, pure dry.......10½c
" " " in oil.......11½c
White, Paris, English, prime.......in bbls. 2¼ @ 2¾c
Yellow Ochre, French.......2¼ @ 2¾c
" " " in oil....asst'd cans, 11c; kegs, 8½c
" " Vermont.......in casks 1½c
" Chrome.......17 @ 27c
" " in oil.......18 @ 28c
Zinc White, American No. 1 dry.......9c
" " 1, in oil.......11c
" French (Paris).......11 c
" " in oil.......12 c

Oils.
Linseed Raw.......℘ gal. casks, 79c. bbls. 80c
" Boiled....... " 84c. " 85c
Whale, Crude....... "
" Bleached Winter....... "
Sperm, Crude....... " 1·65
" Winter unbleached....... " 1·85
" " Bleached....... " 1·90
Seal, Extra Refined....... "
Lard, Pure Winter....... "
" Spring....... " 1·00
Cotton Seed, Crude....... " 60c
" Southern Yellow....... " 65c
" White....... "
Neatsfoot, Winter.......70c @ $1·10
Natural Lubricating.......38c @ 40c

Sundries.
Asphaltum.......9c
Benzine.......℘ gal. 16c
Chalk.......1½c
" Block.......
Dryer, Patent, Am'n.......ass't cans, 10½c.; kegs 9c
" " English....... " 11c.; " 9c
Flocks.......
Frostings.......50c
Glue, White.......33 @ 47c
" Sheet.......20c
Glaziers' Points, Zinc.......9c
Gum, Copal.......36c
" Damar.......25c
" Shellac, English.......60c
" " " dark.......56c
Litharge.......10c
Pumice Stone, selected Lumps.......4 @ 6c
" powdered.......4c
Putty in bladders.......3½c
" in bulk.......3c
Rotton Stone, soft, English.......8c
Spirits Turpentine.......38c
Whiting, Spanish.......1c

Glass.
French Window—1st, 2d, 3d, and 4th qualities. Per box of 50 feet.

SINGLE.

SIZES.	I.	II.	III.	
6 x 8 to 10 x 15	$10·25	$9·25	$8·75	$8·00
11 x 14 to 16 x 24	12·00	11·00	10·00	9·50
18 x 22 to 20 x 30	15·00	13·50	12·00	10·50
15 x 36 to 24 x 30	17·50	15·25	12·50	
26 x 28 to 24 x 36	18·25	16·00	13·25	
26 x 36 to 26 x 44	20·00	18·00	14·50	
26 x 46 to 30 x 50	21·00	19·00	15·25	
30 x 52 to 30 x 54	22·50	20·25	16·25	
30 x 56 to 34 x 56	24·50	21·75	19·00	
34 x 58 to 34 x 60	26·00	24·50	21·50	
36 x 60 to 40 x 60	30·50	27·00	24·50	

DOUBLE.

SIZES.	I.	II.	III.	IV.
6 x 8 to 10 x 15	$15·50	$15·00	$14·00	$13·00
11 x 14 to 16 x 24	19·25	17·75	16·00	15·25
18 x 22 to 20 x 30	24·00	21·75	19·25	
15 x 36 to 24 x 30	28·00	24·50	20·00	
26 x 28 to 24 x 36	29·25	25·75	21·25	
26 x 36 to 26 x 44	32·00	29·00	23·25	
26 x 46 to 30 x 50	33·75	30·50	24·50	
30 x 52 to 30 x 54	36·00	32·50	26·00	
30 x 56 to 34 x 56	39·25	35·00	30·50	
34 x 58 to 34 x 60	41·75	39·25	34·75	
36 x 60 to 40 x 60	49·00	43·25	39·25	

Sizes above—$12·00 per box extra for every 5 inches. An additional 10 per cent. will be charged for all Glass more than 40 inches wide. All sizes above 52 inches in length, and not making more than 80 united inches, will be charged in the 84 united inches bracket.
Discounts 60&5 %.

Grindstones, Emery, &c.

Walter R. Wood,

GRINDSTONES

283 FRONT STREET,

NEW YORK.

Grindstones.

AMHERST,
INDEPENDENCE,
LAKE HURON,
AND BEREA.

Also Scythe Stones.

WORTHINGTON & SONS, Mfrs.,
North Amherst, Ohio.

EMERY WHEELS AND MACHINERY

Upon which to run the same, of all kinds.

EMERY Emery Cloth, Mill Stone CEMENT. TRADE MARK. DIAMOND Tools, Oil Stones,

Soapstone Register Borders.

For particulars, address,

UNION STONE CO.,
6 Exchange and 26 Devonshire Streets, Boston, Mass

THE LEHIGH VALLEY
Emery Wheel Co.,
Weissport, Penn.
Manufacturers of
"LEHIGH" Emery Wheels and Machines.
Send for Circulars.

THE
Rocky Mountain Vermilion Paint

is "Nature's Compound" of Copper, Mercury, Lead and Iron. A pure Oxide of Metals, containing no earthy matter, hence we claim and are prepared to *prove* that it is the Best and Cheapest Paint in the market. Properly mixed, we will guarantee it to cover double the surface and wear twice as long as ordinary paints. It will not Peel, Scale, Crack or Blister, though subjected to high degrees of heat. It will effectually Prevent the Corrosion of Metals, even in mid ocean. Warranted superior to red lead or any other lead, for any and all purposes for which paint is required. Please send for circulars.

All orders should be addressed, **Wm. H. Corey,** General Agent, 29 Sabin St., Providence, R. I.

Bennett Hotchkiss and N. C. Stiles' Patent.

This Drop (which has been illustrated in this journal is of that class in which the Hammer is raised by a stiff belt or board passing up between two friction rolls, and is so well known that we will only describe our improvements. The patents we are working under are those of BENNETT HOTCHKISS (who in an interference case with Goulding and Cheney was declared the first inventor) and N. C. STILES. Our improvements consist:

First.—Of an arrangement of parts that makes it the most complete Jobbing Hammer, and will take the place, to a great extent, of all other kinds for forging. In addition to the upright rod, which is operated by the hammer to open and close the rolls, we place another rod the lower end of which is secured to the end of a lever which is operated by the hand or foot, which operation also opens and closes the rolls at will. The lower end of this rod has a slot, so that the action of the hammer will not disturb the hand lever, thereby preventing the hand being injured, as otherwise would be the case.

Second.—No dog is used on the upright to hold up the hammer. The belt or board passes up between two clamps situated under the rolls, so arranged that as the hammer ascends they will freely open of themselves, but on descending they will close and hold up the hammer. To let the hammer fall the clamps are opened by pressure upon the foot treadle.

Third.—The board or belt is secured to the hammer by an elastic connection, which prevents the sudden jar and destruction of the same. The back roll is made adjustable to different thicknesses of board or belt, as also are the clamps. An adjustable collar on the upright rod allows the operator to obtain *any hight* of blow desired automatically. If one blow is wanted, press upon the treadle and remove the pressure as soon as the blow is given. Keep the foot upon the treadle and the blows will be repeated until the pressure is removed. If a blow of less hight than the collar is set for is required, work the hand lever, which will give you any hight of blow desired. The hammer can be held up at any point below the collar by bringing the hand lever into action when the hammer is at the desired hight, so that the next blow can be given from a state of rest, of less hight than the collar is set for. This is a feature no other drop has; that is, the first blow struck can be of less hight than the second or third, and obtained from a state of rest. A gentle pressure upon the treadle will allow the hammer to go down slowly, but it will stop and remain suspended at any point as soon as the pressure is removed.

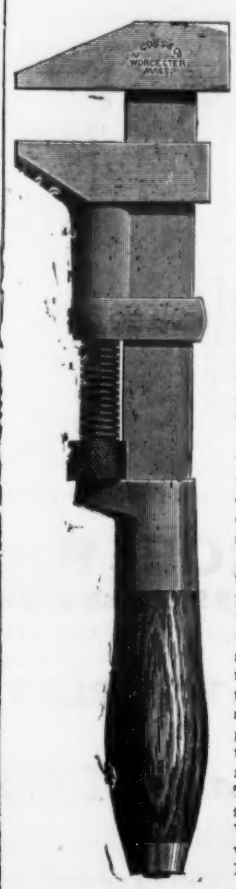
The clamps in holding up the hammer keep the board from touching either roll and prevents the same from being worn uneven.

Manufactured only by the
Stiles & Parker Press Co.,
MIDDLETOWN, CONN.

L. COES'

Genuine Improved Patent

SCREW WRENCHES.



Manufactured by
L. COES & CO.,
Worcester, Mass.

Established in 1839.

Registered March 31, 1874.

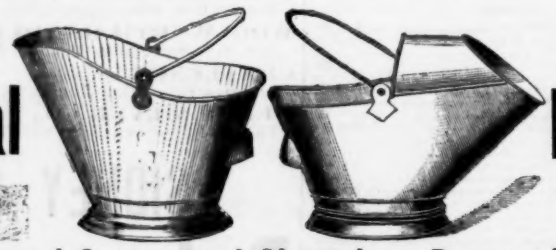
We invite the particular attention of the trade to our New Straight Bar Wrench, *widened*, full size of the larger part of the so called "reinforced or jog bar." Also our enlarged jaw, made with ribs on the inside, having a full bearing on the front of bar (see sectional view), making the jaw fully equal to *any* strain the bar may be subjected to.

These recent improvements in combination with the nut inside the ferrule firmly screwed up flush, against square, solid bearings (that cannot be forced out of place by use), verifies our claim that we are manufacturing the strongest Wrench in the market.

We would also call attention to the *fact*, that in 1869 we made several *important* improvements (secured by patents), on the old wrench previously manufactured by L. & A. G. Coes, which were *at once closely* imitated and sold as the *Genuine* Wrench by certain parties who seem to rely upon *our* improvements to keep up their reputation as manufacturers, and although the fact of their imitating our goods may be *good* evidence that we manufacture a superior Wrench, we wish the trade *may not be deceived* on the question of *originality*. Trusting the trade will fully appreciate our *recent* efforts, both in improvements on the Wrench and in the adoption of a Trade Mark, we would caution them against imitations. None genuine unless stamped

"L. COES & CO."

Warehouse, 97 Chambers St., & 81 Reade Sts., N. Y.
HORACE DURRIE & CO., Sole Agents.



Coal Hods.

Stamped Corrugated Sheet Iron Bottom Riveted.

We manufacture six styles having our patent corrugated bottom, and all having the body bottom and hoop **riveted** together. Dealers before buying will find it to their advantage to get our prices, and also to beware of a **seamed** hod that is in the market, somewhat similar in shape to ours. Don't buy any but the **Corrugated Riveted Bottom Hod,** manufactured by

SMITH, BURNS & CO., 46 Cliff St., N. Y.
Also Manufacturers of
Galvanized and Japanned Sheet Iron Goods, and Plain, Stamped and Japanned
TIN WARE.
PRY PANS. FIRE SHOVELS, ASH SIFTERS, &c. Send for Catalogue.

Iron & Brass Wood Screws.

Full assortment constantly on hand.

ALFRED FIELD & CO.,
Importers,
47 John, and 5 Dutch Streets, N. Y.

FORTY-SECOND YEAR.

Goods stamped "D. R. Barton & Co." are NOT made by me.
For GENUINE "D. R. Barton" Edge Tools, Planes, Axes, &c., be sure to address D. R. BARTON, and NOT D. R. Barton & Co.
Factory and Office, Mill Street, cor. of Furnace.
D. R. BARTON, Rochester, N. Y.

Elmira Nobles Mfg. Co.,
Manufacturers of
WATROUS" SHIP & CARPENTERS' AUGERS,
Adjustable Handled Drawing Knives, Axes, &c.
ELMIRA, N. Y.

White Lead, &c.

John T. Lewis & Bros.,
No. 231 South Front St.,
PHILADELPHIA.

JOHN T. LEWIS & BROS. WARRANTED PURE WHITE LEAD. PHILADA.

TRADE MARK.
MANUFACTURERS OF
PURE WHITE LEAD, RED LEAD, Litharge, Orange Mineral, Linseed Oil
AND PAINTERS' COLORS.

ATLANTIC WHITE LEAD CO. ROBERT COLGATE & WARRANTED PURE

TRADE MARK.
The Atlantic White Lead and Linseed Oil Company,
MANUFACTURERS OF
White Lead (Atlantic), Red Lead Litharge & Linseed Oil.
ROBERT COLGATE & CO.,
287 Pearl Street, New York.

Established 1779.

WETHERILL & BRO.,
Manufacturers of
White Lead, Red Lead, Litharge & Orange Mineral.
Offices, 31st. St. below Chestnut, PHILADELPHIA.

Brooklyn White Lead Co.

TRADE MARK.
White Lead, Red Lead and Litharge.
89 Malden Lane, NEW YORK.
FISHER HOWE, Treas.

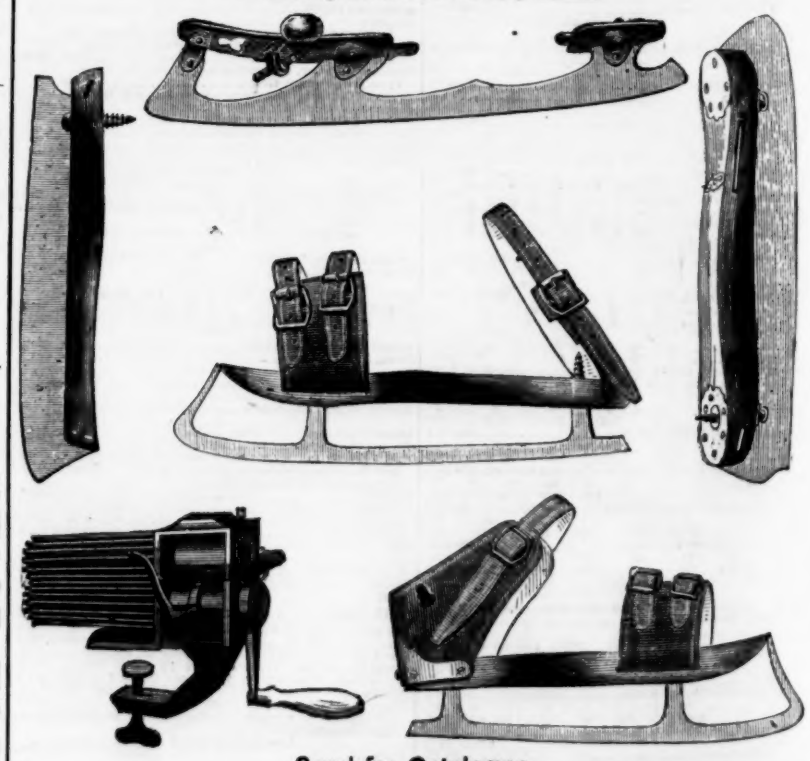
JOHN JEWETT & SONS
Manufacturers of the well known Brand of
WHITE LEAD.

JEWETT & SONS' PERFECTLY PURE WHITE LEAD.

TRADE MARK.
Also Manufacturers of
LINSEED OIL AND FLOOR OIL CLOTHS,
182 Front Street NEW YORK

P. O. BOX 3760.

UNION HARDWARE CO.,
MANUFACTURERS OF
Skates, Skate Straps, Handles,
BASE KNOBS, WOOD TURNINGS.
Also Dog Collars, Muzzles, Empire Fluting Machines, &c.
120 Chambers and 50 Warren Streets, NEW YORK.
Factory at Wolcottville, Conn.



Send for Catalogue.

Our Illustrated Catalogue is now ready for the fall trade of 1874, representing a full assortment of the largest and best stock of Skates in the market.

Also a full line and large stock of goods suited to the wants of the trade. Our extensive facilities for producing wood goods enables us to offer very low prices to manufacturers using large quantities of handles.

ESTABLISHED A. D. 1833 and 1855.

JACOBUS & NIMICK MFG. CO.,
PROPRIETORS OF
Pittsburgh Novelty Works & Pittsburgh Variety Works,
Manufacturers of
LOCKS AND LATCHES.
Fairbanks' Standard Platform and Counter Scales, Paint and Coffee Mills Builders' and Domestic Hardware generally.
New York Office, 96 Chambers St., N. Y.

Hardware.

SPEAR & JACKSON,

Sheffield, England,

MANUFACTURERS OF

Saws, Files, Edge Tools and Steel.

JOHN L. FISHER. Agent

116 Duane Street, NEW YORK.

ALFRED FIELD & CO.,

Hardware Commission Merchants,

IMPORTERS AND EXPORTERS.

Principal Offices and Warehouses:

Birmingham, Sheffield & Liverpool, England; New York & New Orleans, U. S.

A large line of Birmingham and Sheffield goods in stock at

47 John & 5 Dutch Sts., N. Y., & 75 Gravier St., New Orleans.

HERMANN BOKER & CO.,

OFFICES AND WAREHOUSES:

NEW YORK, 101 and 103 Duane and 91 and 93 Thomas Streets.

REMSCHEID and SOLINGEN (Prussia.) H. BOKER & Co.

SHEFFIELD (England), No. 3 Arundal Lane, Represented by Mr. ARTHUR LEE.

LIEGE (Belgium), Represented by Mr. LOUIS MULLER.

Manufacturers and Importers of **Cutlery, Guns, Hardware** and **Railroad Material.**

Proprietors of **TRENTON VISE AND TOOL WORKS, Trenton, N. J.**—Vises, Picks, Mattocks, Grub Hoes, Sledges, Hammers, Bridge Work, Turn Tables, etc.

Proprietors of the **MANHATTAN CUTLERY CO.,** "O. K." Razors.

Sole Agents for **LAMSON & GOODNOW MFG. CO., Shelburne Falls, Mass.**—Table Cutlery and Butcher Knives.

W. & S. Butcher's Files, Edge Tools and Razors, the largest stock in the United States.

Geo. Wostenholm & Son's Knives, Scissors and Razors, the largest stock in the U. S.

John Wilson's Butcher and Shoe Knives.

Peter Wright's and Armitage Anvils.

We always have on hand a full assortment of

German and English Hardware, Cutlery, Guns, Gun Material, Chains, Heavy Goods.

ROY & COMPANY,

West Troy, N. Y.,

Manufacturers of

Wrought Iron Butts, Strap and T Hinges,

PLATE AND HOOK HINGES,

Cold Pressed Nuts and Washers, Felloe Clips, &c

JOHN L. FISHER, Agent, 116 Duane Street, New York.

STANLEY WORKS,

MANUFACTURERS OF

Wrought Butts, Strap and T Hinges.

Bronzed Butts and Bolts.

Wrought Barrel, Square and Shutter Bolts.

Wrought Chest Handles, Washers, Flush Bolts, &c.

79 CHAMBERS ST., NEW YORK.

Factory at New Britain CONNECTICUT.

CROOKE & CO.,

MANUFACTURERS OF

WROUGHT IRON BUTTS,

All our goods are manufactured from patent faced iron plates; they have a smooth face and bright finish.

163 & 165 Mulberry Street, New York.

FERNALD & SISE, Agents, 100 Chambers Street, N. Y.

QUACKENBUSH, TOWNSEND & CO.,

Successors to

SEARS, LEAVITT & CO.,

IMPORTERS AND WHOLESALE DEALERS IN

Hardware, Cutlery, &c.,

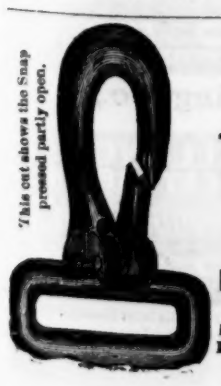
59 and 61 Reade Street, New York.

DEPOT FOR

THOMAS JOWITT & SONS, (Sheffield, England,) Celebrated FILES AND HORSE RASPS. Rough and Ready and CLIPPER SCYTHES, Warranted.

THOS JOWITT & SON TESTED CORPORATE MARK

"BEAVER" (American, FILES AND HORSE RASPS. "WIDE AWAKE" AXES.



This cut shows the Snap pressed partly open.

MIDDLETOWN TOOL CO.,

MIDDLETOWN, CONN.,

MANUFACTURERS OF

The Celebrated "Baldwin" Plane Iron

HENSHAW'S PATENT HARNESS SNAPS

GERMAN HARNESS SNAPS,

PAT. GAFF TOP-SAIL SELF-MOUSING SHIP HOOKS

Plow, Fillettster & Dado Stops of all kinds, Set Screws for Plows, Bench Plane Starts, &c. Patent Washer Cutters. Plane Iron Screws to order of any size.

Send for Illustrated Catalogue and Price List.

JOHN WILSON'S CELEBRATED

BUTCHERS' KNIVES,

BUTCHERS' STEELS,

AND

SHOE KNIVES.

CORPORATE TRADE MARK. FOUR PEPPERCORNS AND A DIAMOND

GRANTED A.D. 1766, BY THE CORPORATION OF CUTLERS OF SHEFFIELD, AND PROTECTED BY ACT OF PARLIAMENT.

THE TRADE MARK, IN ADDITION TO THE NAME, IS STAMPED UPON EVERY ARTICLE MANUFACTURED BY

JOHN WILSON.

BUYERS ARE SPECIALLY CAUTIONED AGAINST IMITATIONS OF THE MARK, AND THE SUBSTITUTION OF COUNTERFEITS BEARING THE NAME, "WILSON," ONLY.

Works:—SYCAMORE STREET, SHEFFIELD. ESTABLISHED in the Year 1750.

BEAM & MURRAY,

IMPORTERS OF

Anvils, Chains, Pocket Cutlery Guns, Files,

BIRMINGHAM, SHEFFIELD & GERMAN HARDWARE,

Wostenholm's IXL Pocket Knives & Razors, Butcher's Files, Tools, &c.

No. 93 Chambers Street, NEW YORK.

THE RIDER AIR ENGINE

Combines in the highest degree,

Economy, Safety & Durability.

USES NO WATER

Requires no Engineer,

Has no Steam and Water Gauge to look after,

CANNOT EXPLODE UNDER ANY CIRCUMSTANCES,

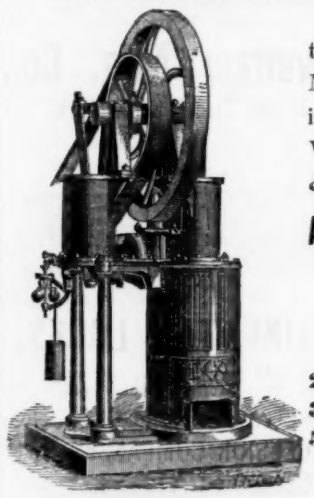
Does not increase the risk of Fire or Insurance, is extremely Simple and not likely to get out of order,

And unlike all "Caloric" Engines is

VERY POWERFUL,

Being 50 per cent. more powerful than

STEAM ENGINES OF EQUAL RATINGS.



Is admirably adapted for all light manufacturing purposes, for Printers, Farmers, Shoe Manufacturers, Machinists, Tea Stores, hoisting, &c. Also for PUMPING at Railroad Water Stations, Residences, Hotels, Breweries, &c., &c. Requires the least possible fuel,

A 2 Horse-Power Engine running all day on 30 pounds of Coal.

PRICE.

2 Horse-Power complete	$500 00
3 " "	700 00
5 " "	950 00

Send for Catalogue.

RIDER, WOOSTER & CO.,

Walden, Orange Co., N. Y.

GREENFIELD TOOL CO.,

Sole Manufacturers of the Celebrated

"Diamond" PLANE IRONS,

Of **Uniform** temper and finish. Solid **Steel Caps** and **Warranted. PATENT FORGED OX SHOES.** The **only** Shoe made with **concavity** to fit hoof, and the best and **cheapest. BENCH AND MOULDING PLANES** of every description. Also, Plow and Match Bits, Moulding and Rabbet Irons, Plane Stops, Cuts, Starts, Plates, &c., &c. Drop Forgings to order. Address for Catalogue and Prices

GREENFIELD TOOL CO., Greenfield, Mass.

Warehouses **New York, 37 Chambers St.; Boston, 22 Oliver St.** ☞ Reduced Prices for 1874.

BUSH HILL IRON WORKS,

Corner 16th & Buttonwood Streets,

PHILADELPHIA.

JAMES MOORE,

(Successor to MATTHEWS & MOORE,)

Engineer, Machinist, Founder and Boilermaker,

CASTINGS of every description.

ROLLING MILL AND FURNACE EQUIPMENTS COMPLETE.

Rolls Turned for Rails, Beams, Angles, and all shapes for Iron, Steel, or Composition Metals.

Sugar Mill, Saw Mill and Grist Mill Machinery,

AND MILLWRIGHTING IN GENERAL.

BOILERS—FLUE, TUBULAR AND CYLINDER, and all kinds of

TANK AND PLATE IRON WORK.

THE SPRAGUE Can Opener Co.,

56 Arcade, ROCHESTER, N. Y.

This Tool Opens easily all Tin Packages of

FRUIT, VEGETABLES, OYSTERS OR FISH.

Is Warranted for Perfect Manufacture and Utility.

Direct all correspondence to the **Sprague Can Opener Co., Rochester, N. Y.** Goods delivered in New York, Philadelphia, Boston and Chicago.

PENCIL DIVIDERS.

Fig. 1.

The following cuts represent a simple contrivance, for which Letters Patent were granted Feb. 24th, 1874. It consists of a metal joint by which two ordinary Lead Pencils may be connected together so as to form a pair of Dividers which may be used for all the purposes to which Dividers are applicable in ordinary Drawing, and which have the advantage of being lighter and cheaper than anything else in the market which will do the same work.

Fig. 1 shows it as applied to a pair of pencils, and Fig. 2 represents a steel point, connected with a spring socket, which may be slipped over the point of either of the pencils thus forming a pair of steel pointed dividers.

Hardware Dealers will find this a very salable article, as it is useful not only to Architects, Engineers and other Professional Draughtsmen, but to all classes of Mechanics:

WHOLESALE PRICES TO DEALERS.

	₱ doz.	₱ gro.
Instrument with 2 Pencils and one steel point	$3·00	$33·00
Joint only, without Pencils	1·50	16·50
Steel Points	·75	8·00

Sample dozen instruments with points sent free by mail for $2.

Goodnow & Wightman,

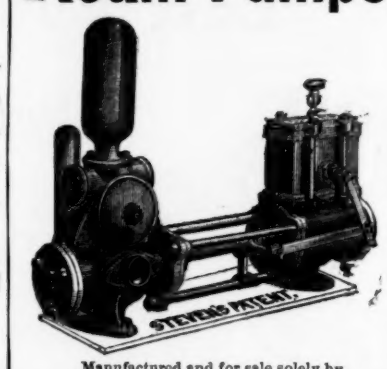
23 Cornhill, Boston.

Wholesale Agent wanted in New York, Philadelphia and Chicago, to introduce this instrument to the trade.

Fig.

DIRECT-ACTING

Steam Pumps,



Manufactured and for sale solely by

STEELE & CONDICT,

TITAN IRON WORKS, Jersey City, N. J.

Office and Salesroom

88 Liberty Street, New York.

No auxiliary valves used. Direct connection between piston rod and valve movement. No knocking or jarring. Circulars and price lists sent upon application.

WILSON BOHANNAN,

Manufacturer of Patent

Brass Spring

PAD LOCKS

FOR RAILROAD SWITCHES,

Freight Cars, &c.

Cor. Broadway and Kossuth Street,

BROOKLYN, E. D., N. Y.

The Best Paper! Try It!!

The **Scientific American** is the cheapest and best illustrated weekly paper published. Every number contains from 10 to 15 original engravings of new machinery, novel inventions, Bridges, Engineering works, Architecture, improved Farm Implements, and every new discovery in Chemistry. The Scientific American has been published weekly for 30 years, and stands foremost of all industrial papers. A year's numbers contain 832 pages and several hundred engravings. Thousands of volumes are preserved for binding and reference. The practical receipts are well worth ten times the subscription price. Terms, $3·20 a year by mail, including postage. Specimens sent free. May be had of all News Dealers.

PATENTS obtained on the best terms. Models of new inventions and sketches examined, and advice free. All patents are published in the Scientific American the week they issue. Send for Pamphlet, 110 pages, containing laws and full directions for obtaining Patents.

Address for the Paper or concerning Patents,

Munn & Co., 37 Park Row, New York.

Branch Office, cor. F and 7th Sts., Washington, D. C

PHILADELPHIA.

(Corrected weekly by Lloyd, Supplee & Walton).

Terms, 30 days. For 60 or 90 days, interest added at 10 per cent. per annum.

Anvils.—Solid Cast Steel.....₱ lb 14c
Peter Wright's.....₱ lb, gold, 12½c
Wilkinson's.....11½c
Eagle.....11 cents currency—dis 15 @ 15&5 %
Apple Parers.—Union.....per doz $6 50 net
Skeleton..... " 6 50 net
Victor..... " 6 75 net
Domestic..... " 7 00 net
Reading..... " 12 00 net
Bay State Paring, Coring and Slicing.. " 10 50 net
" " Peach Parers..... "
Axes.—Mann's Light.....Per doz. $13 00 @ 12 50
Hunt's Light..... " 13 00 @ 12 50
Red Indian, all sizes..... " 12 50 @ 12 00
Red Chiertain, all sizes..... " 13 00 @ 12 50
Crown Prince..... " 13 50 @ 13 00
Augers and Auger Bits.—Pierce's Pat.
Twist Bits.....dis 25 @ 30 %
Douglass' & Ives' Bits.....dis 30&10 %
Connecticut Valley Auger Bits.....dis 35&10 %
Cook s Bits.....dis 40&10 %
Jennings' Bits.....dis 10 %
Bates' Nut Augers.....dis 30&5 %
Douglass' & Ives' Augers.....dis 20&10 %
Watrous' Ship Augers.....dis 10 %
Bonney's Pat. Hollow Augers.....dis 25 %
Stearns' Patent Hollow Augers.....dis 25 %
Balances.—Landers, Frary & Clark's....dis 20 @ 22½ %
Chattillon s.....dis 20 @ 22½ %
Morton's.....dis 20 @22½ %
Common Spring with Hook..... ₱ doz $1 38 @ 2 00
Bells.—Bevin Bros. Mfg Co. Light Hand Bells.....dis 60&10 %
Other makers light.....dis 65&10 %
Swiss Pattern Hand Bells.....dis 50 %
Connell's Door Bells.....dis 50 %
Great Western and Kentucky Cow.....dis 50&10 %
Boring Machines.—Bates' Mfg. Co., complete with augers.....dis 15 @ 20 %
Douglas Mfg. Co., complete with augers..dis 15 @ 20 %
Common Boring Machines, no Augers.....$4 25 @ 4 00
Auguar " " ..... 5 25 @ 5 00
Bolts.—Eastern Carriage Bolts .....special prices
Western " " .....
Philadelphia " " .....dis 50&5 @ 55&10 %
" Eagle, (Coleman's).....dis 50&5 @ 50&10 %
Wrought Shutter.....dis 50 @ 50x5 %
Braces.—Barber s.....dis 40&5 %
Eackus.....dis50 %
Bartholomew s American Ball.....dis 10&10 %
Spoffard.....dis 40 @ 40&5 %
Butts.—Cast Fast Joint, Narrow.....dis 30 %
" " Broad.....dis 50 @ 50&5 %
Cast Fast Loose Joint.....dis 50 @ 50&5 %
" Acorn, Loose Pin.....dis 50 %
Wrought Loose Pin.....dis 35 %
" Table Hinges and Back Flaps.....dis 30 %
" Narrow.....dis 30 %
" Loose Joint.....dis 35 %
" Reversible.....dis 35 %
Parker's Blind Butts.... } Discount 50 % by the case
Sheperd's " .... } 50&10 %.
Clark's " ... }
Cherrytree " ... }
Lull & Porter's Blind Butts.....dis 45&50 %
Chains.—German Halter.....dis 15 @ 20 %
" Coil.....dis 15 @ 20 %
Galvanized Pump.....₱ lb 15c
best Proof Coil Chain—

₱ lb..	13½	10½	9½	9	8¾	8½	8c gold
	3-16	¼	5-16	⅜	7-16	½	⅝ in.

By the cask, 560 lbs., discount ½c per lb. Common Chain, ½c per lb. less than proof.
Chisels.—Socket Framing.....dis 60 @ 60&10 %
Socket Firmer.....dis 60 @ 60&10 %
Tang " .....dis 40 @ 40&10 %
Beaty's Framing and Firmer.....dis 10 @ 15 %
Casters.—Porcelain Wheel.....dis 40&10 %
Iron and Brass Wheels.....dis 40 %
Iron Bed.....dis 40 %
Clothes Wringers.—Universal.....per doz $53 00
Novelty. " 58 00
Monitor. " 53 00
Discount in 2dozen lots, $4 per dozen.
Coffee Mills.—Common Box and Side.....dis 10 @ 15 %
Patent Box and Side.....dis 10 @ 15 %
Cutlery.—American Pocket (best).....dis 25 %
Landers, Frary & Clark, J. Russell & Co. and Lamson & Goodnow Mfg. Co. Manufacturers' net prices
Drawing Knives.—Hart Mfg. Co.'s ..dis 60 @ 60&10 %
Concave Adjustable Handle.....dis 10 %
Beatty.....dis 10 @ 15 %
Fry Pans.
Tinned.....dis 30 %

₱ doz..	$3 00	3 25	3 62	4 00	4 50	5 00	5 50	6 00	7 50
No.....	0	1	2	3	4	5	6	7	8

Burnished

₱ doz..	$2 80	3 00	3 38	3 75	4 13	4 50	5 00	5 62	6 75
No....	0	1	2	3	4	5	6	7	8

Files.
Nicholson Mill Files...new list, $5 00 to £ cur dis 12½ %
" Bastard..... " 5 00 to £ cur dis 12½ %
" Taper..... " 5 00 to £ cur dis 12½ %
Butcher's Mill.....$5 50 to £ gold
" Bastard.....5 50 to £ gold
" Taper.....5 50 to £ gold
Fluting Machines.
K. F. M.—4½ in. rolls, $5 50.....dis 10 %
" —6 in. rolls, $6 65.....dis 10 %
Mrs Knox—4 in. rolls, $5 50.....dis 10 %
" —6 in. rolls, 6 65.....dis 10 %
Hammers.
Yerces & Plumb's.....dis 15 %
Ilsmmond & Son's.....dis 15 %
Veree.....dis 15 %
Hatchets.
Beatty's.....dis 10 @ 15 %

Shingling and Half.	₱ doz...	$7 00	7 50	7 75	8 00
	No.....	1	2	3	

Yerkes & Plumb.....dis 15 %

Shingling and Half.	₱ doz...	$7 00	7 50	8 00	8 50
	No.....	1	2	3	4
Claw....	₱ doz.	$7 50	8 00		
	No....	1	2		3

Hinges.—Strap and T.....dis 40 %
Parker's Blind. } Discount 50 %. By the case
Shepard's " } 50&10 %.
Clark's " for wood.... }
Cherrytree Blind for wood. }
Lull & Porter's Blind.....dis 40&10 %
" .....by the case dis 50 %
Clark's Mortise Blind.....dis 40 %

Horse Nails.	Nos.	6	7	8	9	10
Ausable		27	25	24	23	22
Globe		28	26	25	24	23
Brandage		26	24	23	22	21
Putnam	Nos.	5	6	7	8	9	10
		32	28	26	25	24	22

On Ausable, Globe and Brundage 1000 ₱ lots.....dis 5 %
Knobs.—Door, Mortise and Rim.
Makes in Combination.....new list dis 45 %
Extra discount for cash 2 %
Mineral and Rim.....dis 5 %
Locks and Latches.—Rim and Mortise.....dis 45 %
Extra discount for cash 2 %
Till and Cupboard.....dis 25 %
American Padlocks.....dis 50 %
Scandinavian Pad Locks.

₱ doz.....	$10 50	10 50	12 00	12 00	15 00	15 00	} dis 15 %
No.....	9	9½	10	10½	11	11½	
₱ doz.....	$18 00		18 00		22 00	22 00	} dis 15 %
No.....	12		12½		13	13½	

Trunk Locks.....dis 5 @ 10 %
Thumb and Rogzeus Latches.....dis 25 %
Lanterns.—Square Candle and Oil.....dis 10 %
Globe for Oil.....dis 10 %
" Kerosene.....dis 10 %
Tubular Lanterns.....dis 10 %
Mattocks.—Long and Short Cutter.....dis 25 %
Western Pattern.....dis 25 %
Pennsylvania Pattern.....dis 15 %
Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets.....dis 20 %
Stebbins' Gates.....dis 60 @ 60&10 %
Lincoln's " .....dis 40 @ 40&10 %
Landers, Frary & Clark's Petroleum...dis 10 @ 10&10 %
Taylor's Petroleum Faucets.....dis 20 @ 20&10 %
Brass Liquor Cocks.....dis 20&10 %
Meat Cutters.—Dixon's.....dis 10 %
Woodruff.....dis 10 %
Stowe.....dis 10 %
Hale's.....dis 10 %
Stuffers.....dis 25 %
Planes.—Auburn Tool Co., "Bench ".. dis 35 @ 55&5 %
Second Quality.....dis 50 %
Metallic Plane Co.....dis 25&5 %
Evans Pat. Circular.....net
Plane Irons.—American.....list net
Butcher's.....gold £, $5 50
Picks.—Philadelphia.....net
Pittsburgh.....net
Plumbs and Levels.
Stanley Rule and Level Co.....dis 60&10 %
Wm. Johnson, (Stanley List).....dis 60&10 %
Rakes.—Cast Steel Garden.....dis 55½ %
Malleable Garden.....dis 33⅓ %
Wood Head Iron Teeth.....dis 50 @ 40 %
Rules.—All Maker's Boxwood...dis 60&10 @ 60, 10&10 %
All Makers Ivory.....dis 50 %
Steelyards.—American Pattern.....dis 15 %

₱ doz.....	$3 50	7 00	9 00	1 00	11 00	12 00
No.....	50	100	150	200	250	300

English Pattern.....dis 15 %

₱ doz.....	$7 00	8 67	10 67	12 67	14 67	16 67
No.....	50	100	150	200	250	300

L. F. & C. Excelsior.....dis 10 %

₱ doz.....	$9 00	10 00	12 00	15 00	18 00	21 00
No.....	50	100	150	200	250	300

Scythes.—Golden Clipper, Damascus Blade, Boxed and Sharpened.....₱ doz. $11 00 net
Clipper No. 10, Boxed and Sharpened.....₱ doz $10 50
" " " " 10 00
Common Scythes.....₱ doz $7 00 @ 10 00
Squares.—Steel and Iron, new list.....dis 50 %
Saws.—Disston's Cross Cut.....dis 12½ %
Disston's Hand.....dis 12½ %
W. McNiece's H'd, Cross-Cut & Circ'r, new list.dis 15 %
Boynton's Lightning, new list.....dis 30 %
Shovels and Spades.
Rowland's Plain Back, list Sept. 1st.....dis 30 %
" Back Strap " .....dis 30 %
Oliver Ames & Sons.....new list dis 12½ %
Brady Shovel Co.....dis 12½&5 %
Sad Irons.—Richmond (polished face), per lb. 4 c. net
Richmond (polished face)... by the cask " 3¾c. net
Stone.—Arkansas Oil, No. 1.....₱ lb $1 75
Turkey Oil, No. 1..... " 1 00
Washita Extra..... " 90c
" No. 1..... " 22c
" " 2..... " 18c
" " 3..... " 5½c
Screws.—Iron.....new list, Jan. 1st, 1874, dis 52½ %
Brass.....dis 5&2½ %
Spoons.—
Plated.....dis 40&5 %
Britannia.....dis 40&10 %
German Silver.....dis 20 %
" Light.....new list dis 15&5 %
Lalance & Grosjean Iron.....dis 10 %
Springs.—Gray's Door.....dis 40 %
Torry's Door.....dis 40 %
Stocks and Dies......dis 15 %
Stove Polish.—Gem.....₱ gross, $5 00
Onyx. " $5 00
Try Squares.—Winterbottom.....dis 10 @ 15 %
Stanley Rule and Level Co.....dis 45&10 %
Willis Thrall, No. 2.....dis 30&10 %
Disston's No. 2.....dis 40 %
Tacks, &c.—Half Weight Tacks.....dis 72½ %
" " by the case...dis 72½&7½ %
Clout and Finishing Nails.....7½ %
" " by the case.....dis 7½ %
Traps.—Genuine Oneida—Newhouse list.....dis 50 %
Imitation " " " .....dis 30 %
Vises.—Solid Box.....₱ lb net 15c
Wrenches.—Coes Genuine.....dis 40 %
Coes Imitation Wrought Bar.....dis 50 %
" " Malleable Bar.....dis 60 %
" " (Kellogg) Malleable Bar.....dis 50 @ 10 %
Tafts Pattern (Wrought Bar).....65 %
" " Kellogg's (Nail Bar).....dis 65&10 %
Philadelphia Tool Co.'s Pat. Duplex.....dis 25 %
" " " Improved Baxter.....dis 25 %
" " " Adjustable Fork.....dis 25 %
Wire.—No. 0 to 18.....dis 40 %
No. 19 to 26.....dis 45 %
No. 27 to 36.....dis 45 @ 47½ %
Coppered 0 to 12.....dis 15 @ 20 %
Tinned Broom Wire.....dis 20 %
Galvanized Wire No. 0 to 18.....dis 40 %

BUFFALO.

Reported by Messrs. Sidney Shepard & Co.

Sept. 12, 1874.

Augers—Snell Mfg. Co.....dis 20 %
Bits, Auger—Snell Mfg. Co.....dis 20 %
Bells, Cow—Yaw s Genuine.....dis 30 %
Bolts—Carriage and Tire.....dis 45&10 %
Braces—Bit, Spofford's Patent.....dis 40&5 %
Brads, Cut.....dis 50&7½ %
Boards—Stove, Brooks' Patent.....dis 30 %
Butts—Brass.....dis 25 %
Wrought Narrow.....dis 30 %
" Broad, Loose Joint.....dis 35 %
" Table and Back Flaps.....dis 30 %
Wrought Butts, Loose Pin.....dis 35 %
Belting—Rubber.....dis 30 @ 35 %
Leather, new list, oak tanned.....dis 20 %
Brick—Bath (box of 2 doz) Best English.....$1 50
" Rutherford ".....$1 00
Chalk—White, Carpenter s .....₱ gross, 50c
Red, Carpenter's " 75c
Blue, " " 90c
Chisels—Firmer Socket.....dis 60&10 %
Framing Socket.....dis 60&10 %
Corner Socket Chisels.....dis 60&10 %
Slick's Carpenters'.....dis 60&10 %
Castings—Malleable.....₱ lb 10c
Clothes Wringers, "Novelty " No. 2.....₱ doz $58 00
Elbows—Corrugated..... 5 5½ 6 7
Charcoal.....$3 50 4 50 5 25 6 50 } dis 10 %
Russia..... 7 00 9 50 12 00 14 00 }
Files—Maischoss Bros.....dis 60 %
Freezers Ice Cream—" Champion .....dis 33⅓ %
Hammers—Henry W. Kip's.....dis 75 %
Hinges—Window Blind—
Clark's.....dis 50&10 %
Shepard's and Standard.....dis 55&10 %
Wrought Strap and T.....dis 55&10 %
Hods, Coal—Plain, Black and Galvanized.....dis 10&10 %
Funnel, Black and Galvanized.....dis 10 %
Fancy and Helmet.....dis 10 %
Palace Coal Vases.....dis 10 %
Hooks and Staples—Wrought.....dis 10 %
Hooks—Belt.....dis 50&10 %
Hasps and Staples—Wrought.....dis 60&10 %
Sad Irons.....dis 60&10 %
Kettles—Brass.....4c
Enameled.....₱ lb. 50c
Knives, Drawing—Oval No. 1.....dis 50&10 %
Razor Blade.....dis 60&10 %
Lanterns "Peerless,".....No. 1 3 10
₱ doz $26 00 $10 50 $13 75 dis 10 %
Tuguiar.....
" with Guards.....
Machines—Apple Paring, "Turn Table".....$7 00 ₱ doz
Mills, Coffee—Box and slide, common.....dis 15 %
Box Union and Eagle.....dis 15 %
" American .....dis 15 %
Nails—Clout and Finishing.....dis 2½ %
Shoe.....dis 2½ %
Horse, Ausable.....No. 5 7 8 9 10
30 27 25 24 23 22c
" " Finished & Pointed.....add 1c ₱ lb
" " 1000 lbs.....dis 5 %
" Clinton.....No. 6 7 8 9 10
22 20 19 18 17c
Packing—Rubber.....dis 30 @ 35 %
Pencils, Slate—Soapstone.....4 5 6in.
30 40 50c. ₱ 100
Case lots.....dis 20 %
Paint—White Lead, U. S. Gov't.....₱ lb 9 c
Rivets—Iron, Black and Tinned.....dis 25&7½ %
Rope—Manila, ½ inch and larger.....₱ lb 15½c
Screws—"American Screw Co"—
Flat Head, Iron.....dis 52½ %
Flat Head, Brass.....dis 52½ %
Staples—Blind, Boardman s Pat., ½ & ⅝.....₱ lb 37c
Spoons, Iron Tinned.....dis 10 %
" by the case.....dis 20 %
Plated Rogers' A No. 1.....dis 40&10 %
Britannia.....dis 45&10 %
Squares—Steel and Iron.....new list 50 %
Shoes, Horse—H. Burden & Sons.....₱ keg $6 00
Saws—Henry Disston & Sons.....dis 10 %
Scales—Buffalo Scale Works.....dis 25 %
Fairbanks.....dis 15 %
Traps, Steel—Newhouse.....dis 20 %
Tacks—Half Weight Am. Iron.....dis 72½&7½ %
Vises—Parallel, Buffalo.....dis 20 %
Ware—French, Tinned and Iron.....dis 25 %
Stamped and Japanned.....dis 10 %
Cast Iron Hollow.....dis 33⅓ %
Tin Plates.—Add for each X.....2 50
10x14, I. C. Charcoal...$11 25 , 14x20 C. terne.....$10 25
12x12, " ... 11 75 , 20x28 C. " ... 21 50
12½x17, " ... 19 75 , 20x28 X. " ... 26 00
14x20, " ... 12 25
Pig Tin—Straits.....28c @ 29c
Bar Tin.....30c
Solder.....No. 1, 15c ; No. 2, 14c
Sheet Zinc—
" Lasalle '.....570 100 ₱ casks
$10 00 10 50 ₱ 100 lbs
Sheets.....$10 00
Iron Wire—Bright and Annealed.....dis 40 %
Coppered.....dis 35 %
Tinned.....dis 15 %

Tinned Broom,	Nos.	20	21	22	} dis 20 %
		20c	21c	21c	

Copper—Sheathing 14 @ 18 oz.....₱ lb 33c
Planished.....₱ lb
Bottoms.....₱ lb 33c
Bolts.....₱ lb 35c
Braziers' Sheets.....₱ lb 37c
Sheet Iron.—
18 Common.....$4 95
24 Common.....5 25
24 W. D. Wood & Co., Smooth Finish.....5 90
Am. Russia.....A. 15c B. 12c
Gen. Russia, No. 1 stained.....18c
" clean.....19c
Galvanized.....dis 15 %

CINCINNATI.

Reported by Sellew & Co., Importers and Jobbers Metals, No. 214, 216 and 218 Main street.

Tin Plate.—I. C. 10x14 Charcoal.....$11 50 @ 12 00
I. X. 10x14 Charcoal.....14 50 @ 15 00
I. C. Terne 14x20.....10 00 @ 12 25
I. C. Terne 20x28.....21 50 @ 23 50
I. C. Continuous.....24 00
Block Tin.—
Pig.....₱ lb 27c @ 29c
Solder.—
S. & Co.....₱ lb 24c
Lead.—Pig.....₱ lb 7½c.
Copper.—
Ingot.....₱ lb @ 34c
Planished... " @ 30c
Sheathing.. " @ 33c
Copper Drops @ 30c
Zinc. Cast, 500 to 1000 lbs.....₱ lb 10 c
Case, 100 lbs..... " 11 c
Slab..... " 7½c
Brass.—
Roll, No. 6 to 20.₱ lb 35c
" 20 to 38. " 42c
Babbit Metal.—
Sellew & Co.....₱ lb 25c
Antimony.....₱ lb 17c
Bismuth.....₱ lb $4 00
Nickel.....₱ lb $3 50
Sheet Iron.—
Gen. Russia.....₱ lb 20c

	Com. B.	Fin. S. L. U.	Smooth D Re'fd.
15 to 20	4½c	6½c	8½c
22 to 24	4½c	6½c	8½c
26	4½c	6½c	8½c
27	5½c	6½c	8½c

Galvanized Iron.—Full bundles.....dis 20 %
Nos. 18 to 20.....12c
22 to 24.....13c
No. 26.....14c
27.....15c
Bar Steel.—Silver, ₱ lb 16c ; Crescent, 21c.
Iron Wire.....dis 35 %
Enameled Ware.....dis 45 %
One Piece Corrugated Elbows.....dis 10 %

Charcoal Iron.		Russia Iron.	
4½ inch.....	₱ doz $2 50	4½ inch.....	₱ doz $5 00
5 "	" 3 50	5 "	" 7 00
5½ "	" 4 50	5½ "	" 9 50
6 "	" 5 25	6 "	" 12 00
7 "	" 6 50	7 "	" 14 00

Leader Elbows, Flat Crimp Retinned or Galvanized.—Dis. 10 %

	₱ doz.		₱ doz
2-inch	$1 75	2½-inch	$2 75
3-inch	2 25	3½-inch	3 25
4-inch	2 50	4½-inch	3 50

Sheet Iron Bread Pans.....₱ 5 11c
American Broilers.....₱ doz. $13 50
Tinmen's Machines.....dis 5 %
Sad Irons.....₱ lb. 3½c @ 4½c
Brass Kettles.—Ansonia.....50 %
Dog Irons.....9c

PITTSBURGH.

The following are the Card rates of Lewis, Oliver & Phillips, H. B. Newhall, 11 Warren St., New York, Agent. Iron, standard list assorted sizes, for large orders, c, card rate, 2 % off net.
Flat Rail (1½x¼), punched and coun'sunk..4½c ₱ lb net
Iron Wedges.....4½c ₱ lb net
Norway Nail Rods.....9¼c ₱ lb net
Crow Bars (in ordering please state whether "Wedge" or "Pinch" point).....5c ₱ lb net
Beetle Rings.....8½c ₱ lb net
Fence Pickets—
¾ round, bent to shape, 30c ₱ ft. of fence, less 15 % off net.
Discount off Standard List.
Carriage and Tire Bolts (new list).....30&10 % off net
Plow Bolts.....30, 10&5 % off net
Stove Bolts.....15 % off net
Machine and Square Head Bolts.....30&10 % off net
Coach and Lag Screws.....30&10 % off net
Bolt Ends.....35 % off net
Pat. Hot Pressed Square and Hexagon Nuts, small sizes, from 3-16 to ⅜ in.....7½c ₱ lb off net
Pat. Hot Pressed Square and Hexagon Nuts, large sizes, from 7-16 to 2 in.....6 c ₱ lb off net
Washers, all made from new band iron, small sizes, from 3-16 to ⅜ in.....9 c ₱ lb off net
Washers, all made from new band iron, large sizes, from 7-16 to 1⅜ in.....7 c ₱ lb off net
Nuts and Washers in 25 lb. boxes, 1c ₱ lb ex. Nuts and Washers in lots less than one keg each size, 1c ₱ lb ex. Nuts and Washers in 5 lb. boxes, 1½c. ₱ lb ex.
Harrow Teeth, in lots of 1 ton or more, packed in casks, 1 in. diam. 3¼c ₱ lb net ; ⅞ & ¾ in. diam. 3¾c ₱ lb net ; ⅝ in. diam. 4c ₱ lb net.
Patent Headed Harrow Teeth, packed in casks, ½c ₱ lb ex
Skein Bolts, in bulk, in lots of 1 keg or more, ⅝ in. diam. 5¼c ₱ lb net ; 9-16 in. diam. 6½c ₱ lb net ; ½ in. diam. 7½c ₱ lb net. 1c ₱ lb extra when less than 1 keg of each size is ordered.
Screw Hook-and-Eye Hinges, ⅜ to 1 in. diam. 9c ₱ lb net; ⅝ in. diam. 10c ₱ lb net; ½ in. diam. 12 c ₱ lb net.
Screw and Strap Hinges, in lots of 100 pairs or more, 14 to 5 in. long, 5½c ₱ lb net ; 8, 10 & 12 in. long, 6½c ₱ lb net
Strap and T Hinges.....20 & 10 % off net, delivery as customary.
For purchases amounting to $250 between May 20th and December 31st, 5 % extra off.
Screw Hitching Rings.....$5 25 ₱ 100 net
Duck Nest Tuyere Irons.....$14 50 ₱ doz net
Cast Iron Washers.....₱ lb 4c net
Bridge and Roof Bolts—
1 to 2 in. diam. over 8 ft. long.....₱ lb 4 c net
1 to 2 in. diam. from 4 to 8 ft. long..... " 4¼c net
1 to 2 in. diam. from 1½ to 4 ft. long..... " 4½c net
⅞, ¾ and ⅝ in. diam. over 4 ft. long..... " 4¾c net
⅞, ¾ and ⅝ in. diam. from 1½ to 4 ft. long " 5¼c net
Bridge bolts w th upset ends.....¼c. ₱ lb extra
Wrought iron plates, punched.....5c. ₱ lb net

WAGON HARDWARE.

Wagon Box Strap Bolts—

10 in. long by 7-16 at Screw End, ₱ set of 8 bolts..							55c
12	"	½	"	"	8	"	70c
10	"	9-16	"	"	8	"	} 90c
12	"	9-16	"	"	8	"	
14	"	9-16	"	"	8	"	$1 00
10	"	⅝	"	"	8	"	} 1 00
12	"	⅝	"	"	8	"	
14	"	⅝	"	"	8	"	1 10
16	"	⅝	"	"	8	"	1 20

5c ₱ set for each additional inch over 14 in. All lengths made.
In ordering Box Strap Bolts please give diameter at Screw End.
Wagon Box Rods, narrow track, each.....18c
" " wide track, each.....20c
Single Tree Irons, ₱ set of four pieces.....38c
Wrought Iron Bolster Plates, 2¾ in. wide, ₱ set.....60c
" " " 3 " " 65c
" " " 3¼ " " 70c
" " " 3½ " " 75c
Wagon Brake Ratchets, each.....16½c
" " " finished with guard, each..45 c
Wrought Hammer Straps, heavy pattern, each.....16 c
" " " light " each.....15½c
" Rub Irons, each.....11 c
Stay Chain Hooks, each.....8 c
Double and Single Tree Clips, figure 1, each.....9 c
" " " " 2, each.....10 c
" " " " 3, each.....12 c
Strap Bolts, Rods, Single Tree Irons, Bolster Plates, Brake Ratchets, Hammer Straps, Rub Irons, Stay Chain Hooks and Clips, in lots of 50 sets.....dis 25 %
Wagon Box Staples, 1½ to 2½ in. to clinch. ₱ 1000 $11 00 net
" " " Bevel Box Iron, to rivet on. ₱ 1000 7 50 net
Neck Yoke Eyes, each.....4¾c net
" " with ⅝ rings, each.....7¼c net
King Bolts, ⅝, 1, 1¼, and 1½ in. diam.....₱ lb 4½c net
Wagon Rivets, ex. large, flat, oval and steeple head, ½ in. diam. all lengths..... " 8½c net
Wagon Rivets, 3-16 in. diam., a'l lengths..... " 9½c net
" & Nails, in 5 lb paper boxes....₱ lb 1c extra
" in 25 lb wood " .... " ½c extra
Wagon and Hinge Nails, ¼ in.....₱ lb 17 c net
" " " 3-16 in..... " 19 c net
Double Tree Plates..... " 8½c net
Coupling " ..... " 5½c net
Tongue " ..... " 9 c net
Neck Yoke Plates..... " 11 c net
Tongue Cap Iron, 1¾, 2 & 2¼ in. wide, same price ₱ lb as Band Iron.
Wagon Chains, Stay Lock and Tongue, 5-16 in, ₱ lb 10½c net. ¼ in., 11½c. net

DETROIT.

(Reported by Messrs Jewett & Root.)

Tin Plate.—Best Charcoal

IC, 10x14	$11 25
IX, 10x14	14 00
XX, 10x14	16 75
IC, 12x12	11 75
IX, 12x12	14 50
IC, 14x20	13 25
IX, 14x20	15 00
XX, 14x20	17 75
XXX, 14x20	20 50
XXXX, 14x20	23 25
DC, 100 Plate	10 75
DX "	12 50
DXX, "	16 25
DXXX "	18 00
DXXXX 100 Plate	21 75
IX, 14x14	23 25
IC, 10x14 W	19 75
IX, 10x14 W	13 50

Roofing Tin.—Best Char.

IC, Terne, 14x20	$10 25
IX, " 14x20	13 00
IC, Terne, 20x28	21 50
IX, " 20x28	25 50

Coke Tin.—

IC, 10x14 Coke	$9 50
IX, 10x14, Coke	12 25
IC, 14x20, "	10 50

Sheet Zinc.—
Any width.....11c

Copper.—

Sheathing	32c
Copper Bottoms	32c

Planished Copper.—

Sheathing, 14x48	39c
Boiler Size, No. 7	41c
" " No. 8	41c
" " No. 9	41c

Tinning ₱ sheet, 14x48 10c
" " No. 7 10c
" " " 8 14c
" " " 9 16c

Pig Tin.—

Large Pigs	29c
Small Pigs	29c
Bars	31c

Solder.—No. 1..... 17c
No. 2..... 16c
Bright Wire.....dis 37½ %
Sheet Iron.—

No. 18 Am. Com	4 80
No. 24 Am. Com	5 00
Russia, No. 9, 10, 11&12, 18½c	
W. D. WOOD'S & CO.'S SHEET IRON.—	
Nos. 15 to 20 Smooth	$6 10
" 21 to 24	6 30
" 25 & 26	6 50
" 21 to 24 Char'l	7 80
" 25 & 26 "	8 00

A. PARDEE, Hazelton, Pa. J. G. FELL, Phila.

Steel.

THREE CLASS PRIZE MEDALS. CLASSES 1, 21, 22, Great Exhibition of Industry, LONDON, 1851

MEDAL OF HONOUR, SOCIETY OF ARTS & INDUSTRY, LONDON, 1856.

1st CLASS PRIZE MEDAL, CLASS 1st UNIVERSAL EXHIBITION OF INDUSTRY PARIS, 1855.

COCKER BROTHERS,

SUCCESSORS TO

SAML. COCKER & SON,

(Established 1752.)

SHEFFIELD, ENGLAND

MANUFACTURERS OF

CAST, [illegible], SHEET, AND BLISTER STEEL, OF EVERY DESCRIPTION.

BEST CAST STEEL WIRE, ADAPTED SPECIALLY FOR MECHANICAL PURPOSES;

Also for ROPES, NEEDLES, FISH HOOKS, PINS, CRINOLINE, &c.

BEST CAST STEEL FILES, SAWS, EDGE TOOLS,

HACKLES, GILLS, CARD CLOTHING, CARD TEETH, HACKLE AND GILL PINS, FISH HOOKS, NEEDLES. &c.

ALSO

GENERAL MERCHANTS.

Agent, JONATHAN HATTERSLEY, Cincinnati, O.

WM. JESSOP & SONS,

MANUFACTURERS OF

STEEL,

AND IMPORTERS OF IRON

SHEFFIELD, ENGLAND.

PRINCIPAL DEPOTS:

NEW YORK, Nos. 91 and 93 John Street.....BOSTON, No. 141 Federal.

ST. LOUIS, No. 714 North Second Street.

AGENCIES

PHILADELPHIA, Jas. C. Hand & Co.....PROVIDENCE, Nightingale & Kilton.

CHICAGO, Crerar, Adams & Co.....NEW ORLEANS, Folger & Co.

CINCINNATI, Augustus Wessel.....SAN FRANCISCO, Huntington, Hopkins & Co.

F. W. MOSS,

Successor to **JOSHUA MOSS & GAMBLE BROS.**

FRANKLIN WORKS, WADSLEY BRIDGE WORKS, WALKLEY WORKS, } SHEFFIELD, ENGLAND.

MANUFACTURER AND IMPORTER OF

STEEL AND FILES.

Principal Depots: 80 John St., N. Y., and 512 Commerce St., Phila.

MOSS & GAMBLE **SUPERIOR C. S. "FULL WEIGHT" FILES,**

Cast Steel Hammers and Sledges. Also, "M. & G." Anvils and Vises.

WARRANTED CAST STEEL, especially adapted for DIES and TURNING TOOLS, DRILLS, COLD CHISELS, PUNCHES and all kinds of MACHINISTS' TOOLS.

Celebrated Improved Mild Centre Cast Steel, for Taps, Reamers, and Milling Tools, warranted not to crack in hardening Taps of any size.

Swede Spring Steel, especially adapted to Locomotive and Railway Car Springs.

English Spring and Plow Plate Steel. Also, manufacturer of

Sheet Cast Steel, Shear, German, **Round Machinery, Hammer, Fork and Shovel Steel**

And GENERAL MERCHANT.

A. M. F. WATSON, General Agent.

WILSON HAWKSWORTH, ELLISON & CO.,

MANUFACTURERS OF

STEEL, STEEL WIRE, &C.,

AND GENERAL MERCHANTS.

CARLISLE WORKS, SHEFFIELD, ENGLAND.

AGENCIES:

New York, 72 John Street.
Philadelphia, 505 Commerce Street.
Boston, 21 Oliver Street.
New Orleans, La., 111 Gravier St.

BARROW HÆMATITE STEEL COMPANY,

LIMITED.

BARROW IN FURNESS,

LANCASHIRE, ENGLAND.

MANUFACTURERS OF

Steel Rails, Tyres, Wheels,

Axles, Shafting, Boiler & Ship Plates, Bessemer Pig Iron, etc., etc.

CHAS. CONGREVE & SON,

Sole Agents for the United States,

164 & 106 John Street, opposite Cliff Street, NEW YORK.

J. & RILEY CARR,

MANUFACTURERS OF SUPERIOR

STEEL

For Tools, Cutlery, Saws, Files, Augers, Gimblets, &c.; Sheet Cast Steel for

SPRINGS AND STAMPING COLD;

ALSO THE CELEBRATED

DOG BRAND FILES,

Unsurpassed, if equaled in quality.

Bailey Lane Works, Sheffield, England.

Warehouse, 82 John St., New York.

CORPORATE MARK — STANCH

Established 1810

HENRY MOORE, Attorney.

Steel.

SANDERSON BROTHERS & COMPANY,

(LIMITED)

DARNALL WORKS, ATTERCLIFFE FORGE, } SHEFFIELD, ENGLAND.

Sole Manufacturers of the CELEBRATED

CAST STEEL,

Warranted most superior and **UNSURPASSED** for **TOOLS** and

GRANITE ROCK DRILLS.

A full assortment of this universally approved OLD BRAND of English Steel, and

ARMITAGE'S GENUINE MOUSEHOLE ANVILS,

For Sale by

EDWARD FRITH, 16 Cliff Street, New York.

FRANCIS HOBSON & SON,

97 John Street, NEW YORK,

Sole Manufact'rs of **"CHOICE"** Extra Cast Steel.

Manufacturers of all Descriptions of Steel.

Manufacturers of Every Kind of Steel Wire.

Don Works, Sheffield, England.

JOHN HOGAN, Agent.

S. & C. WARDLOW,

MANUFACTURERS OF THE CELEBRATED

Cast and Double Shear

STEEL,

In Bars, Sheets and Coils, for fine Pen and Pocket Cutlery, Table, Carving, Butcher and Shoe Knives, Turning Tools, Dies, Files, Clock or other Springs, Saws and Tools of every variety.

SHEFFIELD, ENGLAND.

Office of S. & C. WARDLOW, 13 Gold Street, New York.

In calling the attention of consumers of Steel in any of the parishes above enumerated, we would respectfully assure them of our ability to supply an article, that cannot be excelled in quality, temper, and adaptation in all respects to the various purposes for which it may be required. Half a century of practical experience in all departments of Steel manufacture, a long established reputation in England, and the Continent of Europe, and in the Eastern States principally of this Country, encourage us to solicit a universal trial of our Steel for the above or other purposes for which a first class material, in quality, temper, and durability is needed.

G. SANDERSON & CO.,

Manufacturers of all descriptions of

STEEL.

Bailey Street and Broad Lane Steel Works, } **SHEFFIELD, ENGLAND.**

Particular attention is paid to quality and temper for

Files, Saws, Table and Pocket Cutlery, Augers, Shovels, &c.

ALSO STEEL of superior quality for **Turning Tools, Taps, Dies, Drills, &c.**

Hot and Cold Rolled Sheets for Clock Springs, Corset Clasps, Pens, &c.

☞ *Makers of the Celebrated ROCK BORING DRILL STEEL.*

Warehouse, 57 John Street, New York.

JOHN A. GRISWOLD & CO.,

Troy, N. Y.,

Office in New York City, 56 BROADWAY.

MANUFACTURERS OF

Bessemer Railway Steel,

MERCHANT BARS, TIRE AND SHAFTING,

Railroad Iron, Pig Iron, Merchant and Ship Iron,

AGENCIES IN BOSTON AND PHILADELPHIA.

D. G. GAUTIER & CO.,

MANUFACTURERS OF

Hammered and Rolled STEEL of every description

JERSEY CITY, NEW JERSEY.

DUDLEY G. GAUTIER. JOSIAH H. GAUTIER.

CHROME STEEL COMPANY,

MANUFACTURERS OF

CHROME CAST STEEL,

WARRANTED SUPERIOR TO ANY STEEL IN THE MARKET—EITHER ENGLISH OR AMERICAN—FOR EVERY PURPOSE.

Principal Office, **110 Liberty St., N. Y., WILLIAM TOOTHE,** General Agent.

Potter & Hoffmann, Philadelphia, Pa. **Harris, Rice & Co.,** St. Louis, Mo. **AGENCIES,** **Kimbark Bros. & Co.,** Chicago, Ills. **Wood & Leggat,** Hamilton, C. W.

Works, Corner of Keap St. & Kent Ave., Brooklyn, E. D.

Steel.

Sheffield Steel Works,

(Established in 1848.)

SINGER, NIMICK & CO.

Pittsburgh, Pa.,

Manufacturers of **Extra Quality Tool**

CAST STEEL,

Patent Rolled

SAW PLATES,

All descriptions of **Cast and German**

Spring and Plow Steel

Elliptic and Side Springs, Sent Springs,

AXLES, STEEL TIRE,

Plow Wings, Shares, Cultivators, Reaper Bars, ow Bars, &c., &c.

Warehouse, 83 Water and 100 First Streets.

ISAAC JENKS & SONS,

Minerva & Beaver Iron & Steel Works

Wolverhampton, England,

MANUFACTURERS OF

"Jenks" Spring Steel, Cast and Swedes Spring Steel,

TIRE, TOE CORK, SLEIGH SHOE, BLISTER & PLOW STEEL.

Also, Plow and other Iron.

VAN WART & McCOY, Agents,

43 Chambers St., New York.

A full assortment of "Jenks" Spring Steel in stock.

MILLER, BARR & PARKIN,

Crescent Steel Works,

PITTSBURGH, PA.

Manufacturers of all descrip? of

STEEL

EQUAL TO ANY IN THE MARKET.

Office.....339 Liberty St.,

PITTSBURGH, PA.

Gunpowder.

GUNPOWDER

DUPONT'S

Sporting, Shipping, and Mining

POWDER.

DUPONT'S GUNPOWDER MILLS,

ESTABLISHED IN 1801,

Have maintained their great reputation for 70 years. Manufacture the

Celebrated Eagle Ducking, Eagle Rifle, and Diamond Grain Powder.

Also, SPORTING, MINING, SHIPPING, AND BLASTING POWDER.

of all kinds and descriptions.

For sale in all parts of the country. Represented by

F. L. KNEELAND

70 Wall Street, NEW YORK.

GUN-POWDER

LAFLIN & RAND POWDER CO.

21 Park Row, New York,

invite the attention of the the Hardware Trade to their facilities for delivering

BLASTING, MINING and RIFLE

POWDER

IN EVERY PART OF THE UNITED STATES

from having agencies and magazines at all prominent points, beside our works at

Newburg, Saugerties, Kingston, and Catskill, N. Y.; Scranton, Carbondale and Pottsville, Pa.; Baltimore, Md., and Platteville, Wis.

The superiority is well known of our brands of Rifle Powder

Orange Rifle, ***Orange Ducking***

Lightning, ***Audubon.***

SAFETY-FUSE at wholesale.

CHICAGO.

(Reported by Markley, Alling & Co.)

Agricultural Implements.—
Scythes—Dunn Edge Tool Co. ..... dis 30 %
Hay and Manure Forks—Otsego extra C. S. ..... dis 30 %
Hoes and Garden Rakes—Jackson and Otsego ... dis 30 %
Scythe Stones ..... dis 25 %
Scythe and Bush Snathes ..... dis 25 %
Harvest Rakes and Barley Forks ..... dis 25 %
Revolving Horse Rakes ..... dis 25 %
Handles—Fork and Shovel ..... dis 25 %
Cradles—Nithington, Cooley & Co. ..... dis 25 %
—Genuine Morgan ..... ℔ doz net $34 00

Augers and Bits.—
Ives' extra C. S. .... dis 30 % | Snell's ..... dis 10 %
Jennings' ..... dis 5 % | " Car Bits ..... dis 10 %
Cook's ..... dis 30 %

Axes.—Amoskeag Yankee ..... ℔ doz $12 00
Amoskeag Crescent ..... " 13 00
Hunt's Bronzed ..... " 12 00
Jefford's Silver Steel ..... " 12 50
M. A. & Co. Clipper ..... " 12 50
Mann's Red Warrior, Beveled ..... " 12 50
" Double Bitt ..... " 25 00
Handled Axes ..... " 15 00
" " Boys ..... " 12 00
Kennebeck ..... " 11 00

Bolts.—Carriage and Tire ..... dis 70 @ 10&5 %
Cast Barrel and Shutter ..... dis 20&10 %
Wrought Iron Barrel ..... add 10 %
" " Square ..... net list

Butts.—Cast Fast Joint, Narrow ..... dis 30 %
Cast Fast Joint, Broad ..... dis 30 %
" Loose Joint ..... dis 50&5 %
" " Pin, Reversible ..... dis 40 %
" " Japanned ..... dis 35 %
" " Silver Tipped ..... dis 35 %
Wrought Narrow, Fast Joint ..... dis 30 %
" Broad ..... dis 30 %
" " Loose " ..... dis 30 %
" Loose Pin ..... dis 30 %
" Table ..... dis 30 %
" Brass ..... dis 10 %
Garretson's Blind Butts, Wood ..... doz sets $1 75
" " Brick ..... doz sets 2 75
Parker's " Wood ..... doz sets 1 85
" " Brick ..... doz sets 2 75

Casters.—Iron Plate ..... dis 25 %
Brass Wheel Plate ..... dis 25 %
Porcelain Wheel Plate ..... dis 25 %
" " Bed ..... dis 25 %
Iron Wheel Bed ..... dis 25 %

Chisels.—Butcher's Tanged Firmer ..... dis 30 %
" Long Paring ..... dis 30 %
Witherby Socket Framing ..... dis 50&20 %
" " Firmer ..... dis 50&20 %
" " Corner ..... dis 50&20 %
" " Slicks ..... dis 50&20 %

Coffee Mills.

Box 4 Iron	$ 3 75	Box 85 Cast Steel	$12 00
" 103 "	5 25	Side 50	4 75
" 102 "	6 25	" 60	5 75
" 107 Britannia	7 50	" 70	7 25
" 106 "	8 50	" 90	18 00
" 25 Union	10 50	" 15 Union	7 00
" 35 "	12 00	" 20 "	8 00
" 75 Cast Steel	10 50		

Cutlery.—American Table ..... dis 20 %
" Pocket ..... dis 25 %

Door Springs.—Torry ..... ℔ doz $5 00
Rubber ..... " 4 00
Boon's ..... " 5 00

Drawing Knives.—Witherby Tool Co. ... dis 50&20 %
Ohio Tool Co. ..... net list

Files.—Butcher's ..... $7 00 £
Nicholson's ..... $5 00 @ $5 50 £

Hammers.—
Maydole's ..... net list | Yerks & Plumb ..... net list
| Cheney ..... net list

Handles.

Extra Axe ... ℔ doz.	$3 00	Coal Pick, No. 1 .. ℔ doz	$2 00
No. 1 Axe .... "	2 25	Sledge, No. 1 .... "	2 00
No. 2 Axe .... "	2 00	Hatchet ..... "	65
R.R. Pick No. 1 "	2 00	Hammer, A. E. .. "	65

Hatchets.—

	1	2	3
Amoskeag Shingling	$7 25	$8 00	$8 75
" Claw	7 75	8 50	9 22
" Lath	7 50	8 25	
" Solid Steel			12 00

Hinges.—Strap and T ..... dis 20&10 %
Screw Hook and Strap, 8 to 12 in. ..... 8c. ℔ ℔
" " 14 to 24 in. ..... 6½c. ℔ ℔
Hook and Eye Hinges ..... net 13c. @ 16c. ℔ ℔
Gate, No. 35, State ..... ℔ doz $3 50
" No. 3, In and Out ..... " 3 50
" Blinn's Pat ..... " 7 50

Hog Ringers.—Hill's Patent ..... ℔ doz $6 00
Hill's Patent Rings ..... ℔ 100, 25c
" Tongs ..... ℔ doz $6 00

Horse Nails.—Northwestern, 8d 24c
Ausable, 8d 24c
Globe, 8d 26c

Kettles.—Brass ..... 54c | Enameled ..... dis 30&10 %
Locks and Knobs.— | EagleLock Co. ..... dis 15 %
Norwalk Lock Co. dis 45 % | Am. Pad Locks ..... dis 35 %
Branford " . dis 45 % | Conti'al Lock Co. ..... dis 10 %
Meat Cutters.— | Woodruff Patent ... net list
Haven's Patent ... net list | Stowe's Sausage
Hale's " ... dis 10 % | Stuffers ..... net list
Molasses Gates.— | Enterprise Patent ... dis 5 %
Stebbin's Patent .. dis 50 %

Nails.—10d to 60d. ..... per keg $4 00

Oil Stones.—Washita No. 1 ..... net 30c ℔ ℔
Washita Slips ..... net 60c "
Hindostan No. 1 ..... net 9c "
" Axe ..... net 10c "
" Slips ..... net 15c "

Picks and Mattocks.—Picks, Railroad,
Axe Finish ..... ℔ doz $12 00
Picks, Coal, Axe Finish ..... " 10 00
Mattocks, L. C., Axe Finish ..... " 15 00
" S. C., ... " 14 50
Grub Hoes, Axe Finish, No. 2 ..... 1 00

Planes.—Ohio Tool Co., Bench ..... dis 30 %
Sciota ..... dis 35 %
A. Howland & Co., Bench ..... dis 30 %
" Fancy ..... dis
Bailey Patent Iron ..... dis 15 %
Plane Irons, Butcher's ..... dis 30 %

Rivets.—Iron .. dis 10 @ 15 % | Copper, No. 7, net, ℔ ℔, 50c
Tinned ..... dis 10 @ 15 %

Rules.—Stanley Rule and Level Co. ..... dis 50&10 %
Hubbard & Curtiss Mfg. Co. ..... dis 50&10 %

Sad Irons.—Best A No. 1 ..... ℔ ℔, 4c
" Copper Face Star ..... ℔ ℔, 4½c

Sandpaper.
Baeder & Adamson's No. 0 to 1½ ... per ream, net $4 50
" No. 2 to 3 ..... " net 5 00
Wiggin& Stevens, No. 0 to 1½ ..... ℔ ream, net, $4 50
" No. 2 to 3 ..... " 5 00

Sash Locks.—Champion ..... ℔ gross, net, $12 00
Hopkins & Dickinson ..... dis 10 %
Judd's Patent ..... dis 10 %
Corbin's Patent ..... dis 10 %
Clark's Patent ..... dis 20 %

Saws.—H. Disston & Sons ..... dis 10 %
Champion X Cut ..... ℔ foot, net, 60c
M. A. & Co. X Cut ..... " 50c
Lightning Cut ..... " 66c

Screws.—American Screw Co.—Iron ... new list dis 50 %
American Screw Co.—Brass ..... dis 50 %

Shovels and Spades.

Ames' Black Shovels		℔ doz	$14 50
" Polished "		"	15 50
" Patent "		"	18 00
Alling " "		"	16 00
" " "	Molders'	"	18 00
Crane's Black "		"	11 50
" Polished "		"	12 00
Smith's " "	B. S. L. H. Rd. Pt.	"	13 50
" " "	B. S. D. H. Rd. Pt.	"	14 00
Ames' Black Spades		"	16 00
" Polished "		"	17 00
" Patent "		"	17 50
Alling "		"	16 00
Crane's Black "		"	12 50
" Polish'd "		"	13 50

Scoops.—Alling Steel Polished, No. 2 ..... ℔ doz, $13 50
Alling Steeled Polished, No. 3 ..... " 14 00
" " No. 4 ..... " 14 50
" " No. 5 ..... " 15 50
" " No. 6 ..... " 16 50
" " No. 7 ..... " 17 50
" " No. 8 ..... " 18 50
" " No. 10 ..... " 21 50
Crane's Polished, No. 5 ..... " 13 50
" No. 6 ..... " 14 50
" No. 7 ..... " 15 50
" No. 8 ..... " 16 50
Crane's Black Coal, No. 4 ..... " 17 50
" No. 5 ..... " 18 00
Preston, Black Scoops No. 1 ..... " 12 00
" " No. 2 ..... " 12 50
" " No. 3 ..... " 13 00
" Half Pol. Scoops No. 1 ..... " 12 50
" " " No. 2 ..... " 13 50
" " " No. 3 ..... " 14 50
Lippincott, Half Pol. No. 2 ..... " 15 00
" " No. 3 ..... " 16 00

Wrenches.—Taft's ..... dis 60 %
Coe's Imitation ..... dis 50 %
Coe's Genuine ..... dis 35 %

Wringers.—Novelty Clothes Wringer ..... ℔ doz $65 00
Universal Clothes Wringer ..... " 69 00

Chicago Metal Market.

(Reported by Frank Sturges & Co., 72, 74 & 76 Lake St.)

Tin Plate.—

10x14, IC, Ch'l. Good	$	14x20, IX, Ch'l Best	$15 00
10x14, IC, " Best	11 50	14x20, IXX, " "	17 50
10x14 IX, " "	14 00	14x20, IXXX, " "	20 00
12x12, IC, " "	12 00	DC, 100 Plate, " "	11 50
12x12, IX, " "	14 50	DX, " "	14 00
14x20, IC, " "	12 50	DXX, " "	16 50
		DXXX, " "	19 00

Roofing IC, Charcoal, Best 11 00
Roofing IX, Charcoal " 13 50
20x28, IC, Charcoal Roofing, Com 21 00
20x28, IC, " Good 21 50
20x28, IC, " Best 22 00
20x28, IX, " " 26 50
10x14, IC, Coke Plates ..... 10 00 @ 10 50
14x20, IC, " ..... 10 50 @ 11 00
10x20, IC, " 16 50

Block Tin.—
Large Pigs ..... 28c | Bars 30c
Small ..... 28c | Straits, 2c. higher.

Zinc.—Sheet, 500 to 1000 lb. Casks 9½c
Loose Sheets 10c
Slab Zinc or Spelter ..... 6½ to 7½c

Copper.—Bottoms 33c
Sheathing 32c
Planished 38c
" Boiler lengths 40c
Ingot ..... 24c to 26c
Bolt 40c

Braziers' Sheets.—
30x60, 6 to 10 lbs. ℔ ℔ 41c | 30x60, 15 to 100 lbs. . ℔ ℔ 35c
30x60, 10 & 12 lbs. " 38c

Solder.—F. S. & Co.'s make.
Best Fine ..... 22c | Roofing 18c
No. 1 ..... 20c | Braziers' or Spelt. Sold .. 35c

Antimony 18c

Babbit Metal—F. S. & Co.'s 16c
No. 2 ..... 14c

Sheet Iron.—

	Common.	Smooth. Com.	Smooth Charcoal.	Smooth Juniata.
No. 24	5 c	6 c	7¼c	9½c
25 & 26	5¼c	6¼c	7¾c	9¾c
27	5½c	6½c	8 c	10 c

Galvanized Iron ..... dis 20 %
No. 16 to 20 ..... 12c | No. 27 ..... 15c
21 to 24 ..... 13c | 28 ..... 16c
25 & 26 ..... 14c

Russia Iron.— | No. 1 Stained 19c
Perfect ..... 20c | In Sheets, 1c. higher.
American Russia.— | B 12c
A ..... 15c | In sheets, 1c higher.

Lead.— | Lead Pipe, in full coils .8¼c
Pig ..... 7¼c | Lead Pipe, when cut .. 8½c
Bar ..... 8¼c | Sheet Lead 8¾c

Wire—Bright ..... dis 35 %
Coppered ..... dis 30 %

BOSTON.

(Reported by Macomber, Bigelow & Dowse, 156 to 164 Oliver St.)

Augers.—Watrous Ship ..... dis 10 %
L'Hommedieu Ship ..... dis 15 %

Axes.—Forester's Favorite, Bronzed $12 00
Blue Jackets, Blue 11 5
Excelsior, Black 11 00
Chopper's Pride, Bronzed 10 50
Red Cross, Red 10 00
Red Cross, Handled 12 50
Boy's Handled Blue Jackets 12 00

Axe Handles.—Wadleigh's Oak—
A (Extra) $2·50. B (No. 1) $2·00. C (No. 2) $1·50 ℔ doz

Bells, Sleigh—
Fancy Body, Patent Leather, Cloth Bound, White Metal, 30, No. 1 ..... $1·70
Fancy Body, Patent Leather, Cloth Bound, White Metal, 36, No. 1 ..... 1·80
Fancy Body, Patent Leather, Leather Bound, Extra Tinned, 30, No. 1 ..... 2·38
Fancy Body, Patent Leather, Leather Bound, Extra Tinned, 36, No. 1 ..... 2·50
Fancy Body, Patent Leather, Leather Bound, Silver Plated, 30, No. 1 ..... 3·38
Fancy Body, Patent Leather, Leather Bound, Silver Plated, 36, No. 1 ..... 3·50
Shaft, Strap, White Metal, House Bells, extra, 6, No. 1 ..... per pair, 70c.
Common, 6, No. 1 ..... " 60c.

Blind Hinges.—Washburn's ..... per hundred set $9 50
Blind Fasts.—Washburn's ..... per hundred set $5 75
Bolts.—Carriage. Phila. " Girard Works ... dis 50&10 %
Borax.—Best Refined ..... ℔ ℔ 14c
Borers.—Angle, Backus' ..... dis 30 %
Boring Machines.—Angle ..... each $4 75
Common, Snell's quality ..... each 3 75
Braces.—Barber's ..... dis 40&5 %
Backus' ..... dis 50 %
Spofford's ..... dis 40 %
Amidon ..... dis 45 %
Brass Faucets.—L. F. & C. ..... dis 25 %
Butts.—Union Drilled Loose Joint ..... dis 60&10 %
" " Wire Fast Joint ..... dis 55 %
" " Acorn Loose Joint ... dis 60&10 %
Brass Butts ..... dis 30 %
Wrought Table Butts and Back Flaps ..... dis 30 %
Wrought Narrow Butts ..... dis 30 %
Can Openers—Sprague's ..... dis 50 %
No. 1, Iron Handle ..... $4·00
No. 2, Wood Handle ..... 4·50
Cartridges.—" U. S. Cartridge Co." ..... dis 50&10 %
Chisels.—"Buck Bros.' Shank Goods ... add 20 @ 22½ %
Socket ..... add 22½ @ 25 %
Coal Hods ..... dis 35 %
Fancy Japanned, No. 4, 15 in., $8·00; 5, 16 in., $9·00; 6, 17 in., $10·00.
Fancy Galvanized, No. 4, 15 in., $11·50; 5, 16 in., $13·00; 6, 17 in., $14·00.
Perfection, Jap'd, No. 4, 15 in., $12·00; 5, 16 in., $13·00; 6, 17 in., $14·00.
Perfection, Galv'd, No. 4, 15 in., $15·00; 5, 16 in., $16·00; 6, 17 in., $17·00.
Morning Glory, Jap'd, No. 4, 15 in., $12·00; 5, 16 in., $13·00; 6, 17 in., $14·00.
Morning Glory, Galv'd, No. 4, 15 in., $15·00; No. 5, 16 in., $16·00; No. 6, 17 in., $17·00.
Compasses and Dividers.—Bemis' ..... dis 35 %
P. S. & W. ..... dis 25 %
Cordage.—Manila (usual trade dis.) ..... ℔ ℔, 15½c
American Tarred Hemp Lath Yarn ..... ℔ ℔, 10c
Corn Hooks ..... per doz $2·75
Cow Ties ..... dis 10 %

No. 30, Open Ring, 3 foot,		No. 6,	with	Toggle	$3·70
No. 35,	3	" No. 6,	"	Snap	3·90
No. 40,	3½	" No. 5,	"	Toggle	4·23
No. 45,	3½	" No. 5,	"	Snap	4·40
No. 50,	4	" No. 4,	"	Toggle	4·85
No. 55,	4	" No. 6,	"	Snap	5·00
No. 60,	4½	" No. 3,	"	Toggle	5·60
No. 65,	4½	" No. 3,	"	Snap	5·80

Crow Bars.—Iron, Steel Points ..... ℔ ℔, 5¼c
" Sweet" Steel Bars ..... ℔ ℔ 11c
Brown's Steel Bars ..... ℔ ℔ 10c
K. P. & Co. Extra Drill Steel ..... ℔ ℔ 15c
Dividers.—Cook's Nickel Plated ..... dis 15 %
Door Springs.—Stimson's Patent.—
No. 7, Light inside doors, $12·00 ..... dis 25 %
No. 8, " outside " $18·00 ..... dis 25 %
Torrey's ..... $4·00
Emery.—Alden ..... ℔ ℔ 6½c
Wellington Mills ..... ℔ ℔ 10c
Files.—Earl Smith & Co.'s English ..... $5 to £ gold
American ..... $5 to £ currency, less 12½ %
Nicholson ..... $5 to £ currency, less 12½ %
" Regular Taper ..... dis 12½&5 %
Stubb's Tapers, genuine, 3 in., $1·50; 3½, $1·62; 4, $1·88; 4½, $2·13; 5, $2·50.

Funnel Irons.—$2·50 2·50 2·50 3·25 per doz
5, 5½, 6, 7 inch.
Deep Flange.—$3·50 3·75 4·00
5, 5½, 6 inch.

Hammers.—Maydole ..... dis 5 %
M., B. & D., solid cast steel, adze eye, No. 1, $10; 1½, $7·75
" " " " " bell face, No. 1, $11; 1½, $9·75.
Hangers & Rollers.—Novelty ..... dis 30 %
Anti-Friction ..... $1 25 per pair—dis 30 %
Hatchets.—Underhill Edge Tool Co. ..... dis 15 %
C. F. Dowse, warranted Cast Steel—
Shingling ..... 0, $4·75; 1, $5·25; 2, $5·75
Claw ..... 1, 5·75; 2, 6·25
Lathing ..... 1, $5·50
Axe Pattern ..... 1, $7·00; 2, 7·50
Broad ... 0, $5·75; 1, $6·50; 2, $7·50; 3, $9·25; 4, $10·75; 5, $12·75; 6, $14·75.
Hinges.—Strap and T, Stanley Works ..... dis 33⅓ %
Plate, Loose and Fast Joint ..... ℔ ℔ 7½c
Wrought Screw Hook ..... ℔ ℔ 8c
Hoes.—Ely Balch & Co. M., B. & D.'s list, 1874 ... dis 25 %
Remington, M., B. & D.'s list, 1874 ..... dis 30 %
Lanterns.—Tubular No. 0 ..... $9·50
Guarded. No. 74, (with kerosene oil and candle burners) ..... 6·25
Lead.—Sheet and Pipe ..... 8¾c—less 10 %
Locks.—P. & F. Corbin ..... new list dis 45&5 %
Nashua ..... dis 45&5 %
Manure Forks.—
Myers & Ervien, M., B. & D.'s list, 1874 ..... dis 25 %
Peck, Clark & Co., " " ..... dis 25 %
Shumway & Co., " " ..... dis 30 %
Mattocks.—K. P. & Co. axe finish, long cutter .. $13 75
Short cutter 13 50
Meat Cutters.—" Miles's" Challenge ..... dis. 30 %
No. 1, $22·00; 2, $30·00; 3, $40·00.
Metal.—Babbitt, No. 1, 35c; 2, 25c; 3, 16c; 4, 15c ℔ ℔
Nails.—10d and larger ..... unsettled
Nail Pullers.—Little Giant—Small ..... per doz., $22·00
Little Giant—Large ..... " 30·00
Padlocks.—Wilcox ..... dis 50&2 %
All Brass, 2¾ inch, 2 keys, job lot $9 00
Picks.—K. P. & Co., Polished Points—
5 to 6 ..... per doz $9 00; 6 to 7, $9 50
Pins.—Universal Hat and Coat all wood—
2 in. ..... ℔ gross $2 50; 3 in., 3 50; 4 in., 4 50—dis 25 %
Potato Digger.—
" Partridge," 6 square tine ..... ℔ doz $12 00
Shumway & Co., 6 round tine ..... ℔ doz 9 00
Pulleys.—Clark & Co.'s Axle, 2 in. ..... per doz 42c
Plated Ware.—Rogers Bros. ..... new list dis 40&10 %
Plumb & Levels.—" Davis" Pat. Adjustable—
No. 1, Iron and Wood Center Levels ..... dis 50 %
No. 2, First Quality Levels ..... dis 60&10 %
No. 3, Iron Pocket " ..... dis 35 %
No. 4, Level and Plumb Glasses ..... dis 60&10 %
No. 5, Iron Pocket Levels, per square and straight edge ..... dis 50&10 %
No. 6, Improved Iron Bench Planes ..... dis 20&10 %
Pocket Knives.—Conn. Cutlery Co. ..... new net list
American Shear Co. ..... dis 33⅓ %
Rakes.—Cast Steel, garden ..... dis 30 %
Malleable ..... dis 25 %
Rail Barn Door.—*For* Novelty and Anti-Friction Hangers ..... per foot 7c.. dis 30 %
Rivets.—Black ..... dis 25 %
Carriage, oval head, Nos. 3, 4, 5, 6, 7, 8.
13 13 14 14 15 16c ℔ ℔ net
Sad Irons.—Bless & Drake ..... ℔ ℔ 4
Sand Paper—0 to 2, $4·25; 2 to 3, $4·75 ..... dis 10 %
Saws.—*Hand and Panel—*
Wheeler, Madden & Clemson's, same list as " Disston's" ..... dis. 15 %
Disston's ..... dis. 12½ %
Cross Cut—
Wheeler, Madden & Clemson X Cuts ..... per ft., 37c
" " " "Star" X Cuts. " 60c
" " " Champion X Cut. " 50c
" " " One Man X Cut .. each, $2·25
Boynton's genuine Lightning X Cut ..... per ft., 60c
" " One Man X Cut .. each, $2·25
Circular—Wheeler, Madden & Clemson's ..... dis. 25 %
Mill— " " " ..... dis. 25 %
Screws.—American Screw Co. ..... revised list dis 52½ %
Scythe Stones.—
" Willoughby Lake," first quality ..... ℔ gross $6·50
" " second quality ..... " 3·00
Shovels.—O. Ames ..... new list dis 12½ %
M. B. & D. ..... new list dis 12½ %
Snow, Malleable Iron Tip, D Handle—Agents for New England ..... $6·50
Snow, Malleable Iron Tip, long Handle—Agents for New England ..... 5·50
Sifters.—Coal, Rice, &c. $12 00
Spading Forks.—M. & E. ..... dis 25 %
Stone Pickers.—" Partridge," original ... ℔ doz $15 00
Tools.—Aiken's Pattern, 20 in set; Parr's .. $8·00 per doz
Traps.—Oneida ..... dis 20&5 %
Blake's ..... dis 50 %
Vises.—K. P. & Co.'s Solid Box, Blacksmith ..... ℔ ℔ 13c
Parker's Parallel ..... dis 10 %
Backus ..... dis 25 %
" Howards," Parallel ..... dis 20 %
Wardrobe Hooks.—Wire to drive ..... ℔ gross $1 00
Weights.—Window Weights ..... ℔ ℔ 2¼c
Wire Netting.—Clinton Wire Cloth Co., Green, Drab or Black ..... ℔ ft 6c
Wrenches.—Genuine Wrenches, A. G. Coes .. dis 40&5 %

Wringers.—
Novelty and Universal } Tub No. 2 } ..... market unsettled
Eureka ..... per doz $60 00
Novelty Bench, No. 4 ..... market unsettled

Boston Metal Market.

(Corrected by Fuller, Dana & Fitz.)

Tin Plates.—℔ box | **Copper.**— ℔ ℔
I. C. Char. 10x14 @ $11 50 | Sheathing 28c
I. C. Coke 10x14 ..... 9 50 | Bolt 33c
Char. Roof. IC, 14x20. 11 25 | Ingot 22c
Coke " IC, 14x20, 10 25 | **Lead.**— ℔ ℔
Pig Tin.— ℔ ℔ | Pig 6¾c
Banca ..... 30c | Sheet & Pipe. 8·4c, dis 10 %
Straits ..... 25c | **Spelter** ..... ℔ ℔ 8c
English ..... 24c | **Antimony** ..... ℔ ℔ 14c
Zinc.—Sheet ..... ℔ ℔ 10c

Iron.—Sheet Iron, Russia ..... " 18c
Sheet Iron, English ..... " 5 c
" " American Refined ..... " 5¾c
" " Galvanized ..... " 10c
Plate Iron ..... " 4
Swedish and Norway Bar Iron, gold ..... ℔ ton, $122 50
" " " Shapes, gold 137 50
Norway Nail Rods, first quality, gold 145 00
" " second " " 135 00
Best Refined Bar Iron 67 50
The " Burden Best" Iron 106 40
American Pig Iron, Foundry, No. 1, x 33 00
" " " No. 2, x 31 00
" " Gray Forge 28 00
Scotch Pig Iron ..... ℔ ton 36 00 @ 39 00
Wrought Scrap Iron 35 00

Steel.— ℔ ℔ | German 10½c
Eng. Tool ..... 18c | Spring 6½c
American Tool 15c | Tire 6¼c
" Mach 10½c | Sleigh Shoe 4¾c
Bessemer ..... 7½c | Toe Calk 7½c

ST. LOUIS.

Corrected weekly by Semple, Birge & Co

Anvils.—Armitage ..... ℔ ℔, gold, 15c
Peter Wright's ..... " 14c
Wilkinson's ..... " 12½c
Apple Parers.—Conqueror ..... ℔ doz, $9 00
Lightning 9 00
Turn Table 9 00
Axes.—Hunt's ..... ℔ doz $13 00 @ 13 50
Lippincott's ..... " 12 00 @ 13 00
Lippincott's Pioneer ..... 13 00 @ 13 50
Simmons' ..... " 12 00 @ 15 00
Axles.—Kritch & Crane Mfg. Co.'s—
Patent Taper Axles ..... new list net
Swelled Taper Axles ..... new list net
Concord Axles ..... new list net
Red Jacket Axles ..... new list net
Common Axles, 1½ inch and upward ..... ℔ ℔ 8¼c
" " less than 1½ inch ..... " 8¾c
Bellows.—" Best St. Louis make" Co. ℔ n. dis 20 %
Bells.—Troy, Church ..... ℔ ℔, 4·c
Light Brass Hand ..... dis 50 %
Moore's, Cow ..... dis 20 %
Bolts.—Arms, Bell & Co.'s Machine ..... dis 20 %
Arms, Bell & Co.'s Carriage and Tire ..... dis 75 %
Cast Butt Hinges.—Western Butt Co.'s—
Narrow Fast Joint ..... dis 35 %
Broad Fast Joint ..... dis 50 %
" Loose " ..... dis 60 %
Reversible ..... dis 50&10 %
" Japanned and Silver Tipped ..... dis 50 %
Loose Joint " Acorn" " " ..... dis 55 %
Lull & Porter's Blind ..... dis 50 %
Wrought Butts.—Narrow ..... dis 25 %
Reversible ..... dis 30 %
Broad ..... dis 30 %

Chain.—Eng. Coil. 3-16 ¼ 5-16 ⅜ 7-16 ½ n.
15 11 10 9½ 9 8c gold
Trace ..... 6½-10-2 65c "
7-10-2 70c "
German Coil and Halter ..... revised list add 10 %

Chisels.—Socket, Firmer or Framing ..... dis 60 %
Clothes Wringers.—Crown ..... ℔ doz $60 00
Novelty ..... " 69 00
Universal ..... " 69 00
Monitor ..... " 69 00
Corn Cutters or Hooks.—Solid Steel ..... ℔ doz $4 00
Corn Knives.—Dunn Edge Tool Co.'s Clip .. ℔ doz $5 75
Disston's ..... " 6 00
Crow Bars.—Steel Pointed ..... ℔ ℔ 7c
Cutlery.—J. Russell & Co.'s ..... }
Lamson, Goodnow & Co.'s ..... } at minimum list, net
Landers, Frary & Clark's ..... }
Files and Rasps.—Nicholson's Files ... $5 00 less 10 %
Butcher's Mill $6 75
Heller's & Bros Horse Rasps ..... dis 40 %
Forks and Hoes.—
Auburn Mfg. Co.'s Hay and Manure Forks ..... dis 20 %
" " Handled Hoes ..... dis 20 %
" " Planter Eye Hoes ..... add 10 %
Winsted's Planter Eye Hoes ..... add 10 %
Hammers.—Yerkes & Plumb ..... dis 5 %
Masons' Hammers ..... ℔ ℔ 20c
Smith Hand Hammers ..... " 23c

Handles.—Axe ..... Extra. No. 1. No. 2. No. 3.
$2·75 $2·25 $1·75 $1·00
Pick ..... Extra. No. 1. No. 1½ No. 2.
$2·50 $2·00 $1·75 $1·25
Smith & Montross Fork, Hoe and Rake ..... dis 20 %

Harrow Teeth.—1 inch iron ..... ℔ ℔ 4½c
¾ and ⅞ inch iron ..... " 4¾c
⅝ inch iron ..... " c
Barbed or Headed ..... ½c extra
Hatchets.—Hunt's ..... dis 10 %
Simmons' ..... dis 15 %
Hay Knives.—Lightning ..... ℔ doz $13 00
Dunn Edge Tool Co.'s ..... ℔ doz $14 50—dis 15 %
Fisher's ..... 16 50—dis 10 %
Hinges.—Strap and T—St. Louis make ..... dis 25&10 %
Horse Nails.—Ausable ..... 22c rate
Northwestern ..... 22c "
National Patent Pointed ..... 21c "
" " Extra Finished ..... 22c "
Horse Shoes.—R. I. (Perkin's pat.) ..... ℔ keg $6 5
Burden's ..... " 6 50
Mule Shoes ..... " 7 50
Rhode Island Trotting Shoes ..... " 9 00
Locks and Latches.—
Jones & Nimick's ..... revised list dis 40 %
Moorhead, Adams & Co. ..... revised list dis 40 %
Norwalk Lock Co.'s ..... revised list dis 40 %
Mattocks and Grub Hoes.—
Klein, Logan & Co.'s Mattocks ..... ℔ doz. $14 75 @ 15 25
" Grub Hoes, Oval Eye ... ℔ doz. 10 75 @ 12 00
Nails.—Wheeling ..... $3 75 rates
Orders for 100 kegs 10c ℔ keg less.
Picks.—Klein, Logan & Co.'s R. R. and Clay ℔ doz. $11 00
Klein, Logan & Co.'s Coal ..... " 8 50
" " Poll ..... " 11 00
" " Stone ..... " 14 50
" " Tamping ..... " 17 00
Planes.—Ohio Tool Co.'s ..... dis 30 %
Sciota ..... dis 40 %
Post Hole Augers.—Clark's Patent—
No. 1, ℔ doz. $27; No. 2, $30; No. 3, $32 ..... dis 20 %
Barton's Patent ..... ℔ doz $25—dis 20 %
Vaughn's " ..... 25—dis 10 %
Sad Irons.—Monitor Brand. Silver Polished .. ℔ ℔ 4c
Sash Weights.—Standard Solid Eyes ..... ℔ ℔ 3¼c
Saws.—Disston's ..... dis 10 %
Hubbard, Lippincott, B. & Co.'s ..... dis 10 %
Branch, Crooks & Co.'s ..... dis 15 %
Livingston's Patent Buck ..... net list
Screws.—American Screw Co.'s revised list ... dis 50 %
Scythes.—Dunn Edge Tool Co.'s ..... new list dis 25 %
Paris Furnace Co.'s ..... dis 30 %
Scythe Stones.—No. 1 Ind'n Pond ℔ gr's, $7 00 }
Extra Indian Pond ..... " 7 50 }
Premium ..... " 9 50 } dis 25 %
Diamond Grit ..... " 13 50 }
Shovels, Spades and Scoops.—
Ames' ..... dis 10 %
Lippincott's ..... dis 20 %
Rowland's Maxwell ..... revised list dis 15 %
Sledges.—Smith's Stone or Coal Sledges—
Steel Face Polished ..... ℔ ℔, 15c
Solid Cast Steel ..... " 35c
Snaths and Cradles.—Seymour Mfg. Co.'s .. dis 20 %
Springs.—Cleveland Spring Co.'s—
Carriage and Express ..... dis 10 %
Blue Seat Springs ..... new list dis 15 %
Tacks.—Norway Tack Co.'s ½ weight ..... dis 72½ %
Brads ½ weight ..... dis 50 %
Thimble Skeins.—Pump & Skein Co.'s ..... dis 55&5 %
Traps.—Newhouse Patent ..... dis 15 %
Vises.—Solid Box ..... ℔ ℔ 16c
Wilson Mfg. Co.'s ..... dis 15 %
Wrenches.—Coes' Genuine ..... dis 33⅓ %
Coes' Pattern ..... dis 50 %
Taft's ..... dis 60 %

St. Louis Metal Market.

(Corrected Weekly by Messrs. R. Sellew & Co.

Tin Plate.

IC, 10x14, Char $11 00@11 50		IX, continuous, 20 in. x 200 ft.
IX, 10x14, "	14 00	IC, 10x14, best Coke $10 00
IC, 12x12, "	12 00	
IX, 12x12, "	14 50	IC, 10x14, good Coke 10 00
IC, 14x20, "	12 50	
IX, 14x20, "	15 00	IC, 10x20 ..... 17 00
IC, 14x20, Tern. $10 75@11 00		IC, 14x20 ..... 10 50
IX, 14x20, "	13 50	IC, 14x20, Coke Lead. 8 50
IC, 20x28, "	21 00@22 00	IC, 10x14, punch'd for
IX, 20x28, "	25 00@26 00	Safes 10 00
IC, continuous, 20 in. x 200 ft.		

Block Tin.
Large Pigs Straits ..... 28c | Bars 28c
Small " English ..... 27c |

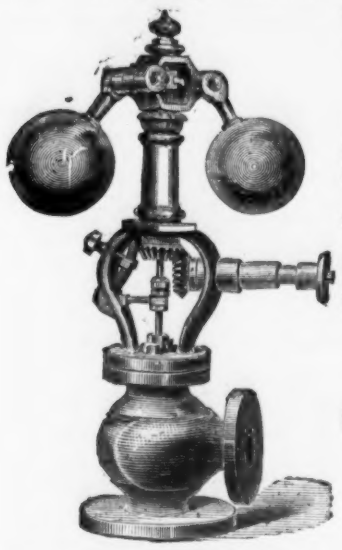
Sheet Zinc.
Casks ..... ℔ ℔ 10c | Sheet ..... ℔ ℔ 10½c

Solder.
No. 1, Refined, in bars or plate $17c
No. 2, " " " 16c
Pig Lead 7½c

Sheet Copper.—18 to 100 lbs. Sheets 30x60 ..... 32c
14 to 16 lbs., Sheets 30x60 ..... 34c
10 to 12 lbs., " and 20x72 ..... 35c
6 to 9 lbs. 38c
Tinned, 14 and 16 oz. 14x48 ..... 31c
Planished, 14 and 16 oz. 14x48 ..... 37c
" No. 7, 8 and 9 ..... 39c
Copper Bottoms 33c

Sheet Iron.—	Com'n.	Sm'th.	Char'l.	Jun'ta.
No. 16 to 20	4¾c	5¾c	7¾c	9½c
No. 22 to 24	4¾c	5¾c	7¾c	9½c
No. 26	5 c	6 c	8 c	9¾c
No. 27	5¼c	6¼c	8¼c	10c

Galvanized Iron ..... dis 20 %
Iron Rivets ..... dis 25 %
Iron Wire ..... dis 35 %
Coppered Market Wire ..... dis 30 %
Copper Rivets and Burs ..... dis 25 %
Russia Iron.—Nos. 9, 10, 11 and 12. ℔ ℔ 20c
No. 1 stained, ℔ ℔ 18c
Imitation Russia, ℔ ℔ 15c
Retinned Stamped Ware ..... dis 25 %



TO ALL WHO USE STEAM-POWER!

We will put our Governor on any Engine, and guarantee it to prove itself superior to all others.

If, after a fair trial, it does not, we will take it off at our own expense.

Shive Governor Co

BETHLEHEM, PA.

ALSO,

SHIVE'S PATENT WATCHMAN'S CLOCK AND DETECTOR.

The Best and Cheapest Watcher of the Watchman made

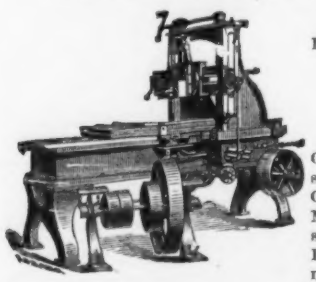
PRICE ONLY $15.

Circulars sent free.

The Pratt & Whitney Co.,

Hartford, Conn.,

Have constantly on hand and making



Drop Hammers

Of recently Improved Construction. Pony Trip Hammers, Blacksmiths' Sheaves, Broaching and Stamping Presses, Iron Shop Cranes, Machinists' Tools, Gun and Sewing Machine Machinery. Make to order Gray and Charcoal Iron Castings of all styles and sizes not exceeding 15 tons weight, (making patterns if desired). Furnish Clamp Pulleys of light patterns, cut gears in a superior manner, &c., &c.

RICHARD DUDGEON,

No. 24 Columbia Street, New York,

MAKER AND PATENTEE OF

Hydraulic Jacks and Punches,

ROLLER TUBE EXPANDERS

And Direct-Acting Steam Hammers.

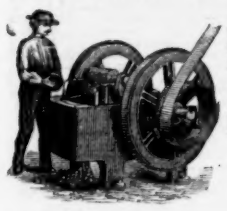
Communications by letter will receive prompt attention.

JACKS for Pressing on Car Wheels or CRANK PINS made to order.

BLAKE'S PATENT

STONE & ORE BREAKER.

New Pattern with Important Improvements & Abundant Strength



For reducing to fragments all kinds o hard and brittle substances, such as STONE for making the most perfect McADAM ROADS, and for making the best CONCRETE. It breaks stone at trifling cost for BALLASTING RAILROADS It is extensively in use in MINING operations, for crushing

IRON, COPPER, ZINC, SILVER, GOLD, and other ORES.

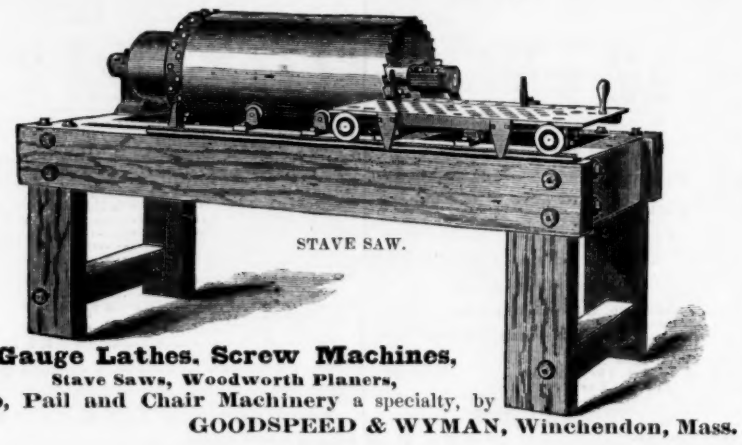
Also for crushing **Quartz, Flint, Emery, Corundum, Feldspar, Coal, Barytes, Manganese, Phosphate Rock, Plaster, Soapstone, &c.**

For Illustrated Circulars, and particulars, address,

BLAKE CRUSHER CO., New Haven, Conn.

Persons visiting New York, can be shown a crusher in operation at 137 Elm St

---



STAVE SAW.

Gauge Lathes. Screw Machines,

Stave Saws, Woodworth Planers,

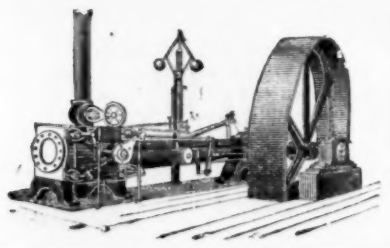
Tub, Pail and Chair Machinery a specialty, by

GOODSPEED & WYMAN, Winchendon, Mass.

CORLISS STEAM ENGINE.

The Best in the World for Economy in Fuel and Cost of Running.

BUILT BY



Robert Wetherill & Co.,

Chester, Pa.,

Engineers, Machinists, Founders,

And BOILER MAKERS.

Stationary Engines, Shafting, Mill Gearing, Hoisting Machines, Improved Piston Packing and Machinery.

Special attention given to Boring Ports and Cylinders.

Philadelphia Forging Works.

MANUFACTURERS OF

Wrought Iron Carriage & Wagon Hardware

AND ALL DESCRIPTIONS OF

Steel & Iron Drop Forgings

OFFICE AND WORKS:

1203 1205 & 1207 East Thomoson St. above Cumberland, PHILADELPHIA.

Guild & Garrison's Steam Pump Works,

Nos. 30 to 34 First Street, Williamsburgh, N. Y., Manufacturers of

Steam Pumping Machinery

Of all descriptions and for all purposes, of any proportion or size, for pumping Hot, Cold, Fresh, Salt, Muddy or Gritty Water, Grain-mash, Syrups, all kinds of Beer, Acids, Molasses, and all heavy and thick fluids. Also for Feeding Steam Boilers, Supplying Tanks, and for Sugar Refineries, Tanneries, Oil Refineries, Gas Works, Hotels, Breweries, and for all classes of manufactories; for Draining Mines and Excavations, and for Rolling Mills, Blast Furnaces and Water Works supplying Cities, Towns and Villages with Water; also, for Wrecking purposes and Steam Fire Engines for Land and Sea.

Also, Manufacturers of Vacuum Pumps, Duplex and Single, and Copper or Iron Vacuum Pans of all sizes and for all purposes, with complete fixtures for Refining Sugar, Corn Syrup, Glue, &c., or for condensing Milk, Extracts, Chemicals, &c., &c.

Catalogues mailed on application.

All Work from this Establishment fully Warranted.

A Written Guarantee given with our Pumps.

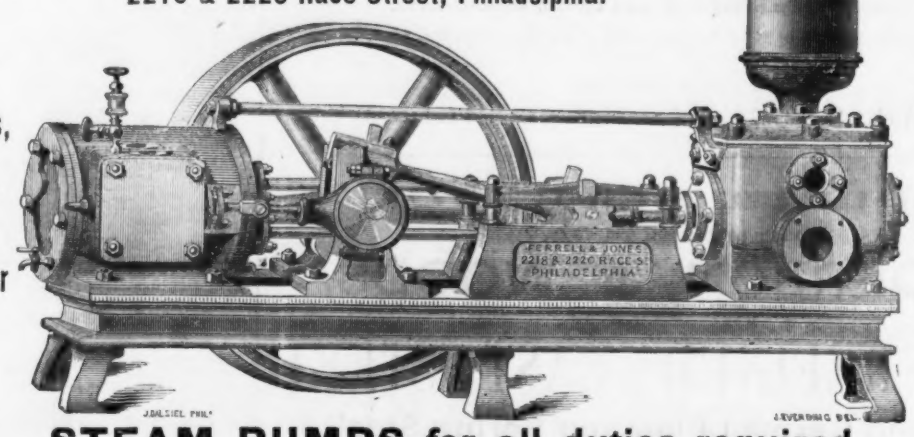
ENTERPRISE HYDRAULIC WORKS,

2218 & 2220 Race Street, Philadelphia.

Fan Blowers.

Piston Blowers,

"FOULDS" Patent Water Elevator.



Our Fly Wheel STEAM PUMP is admirable For Fire Purposes.

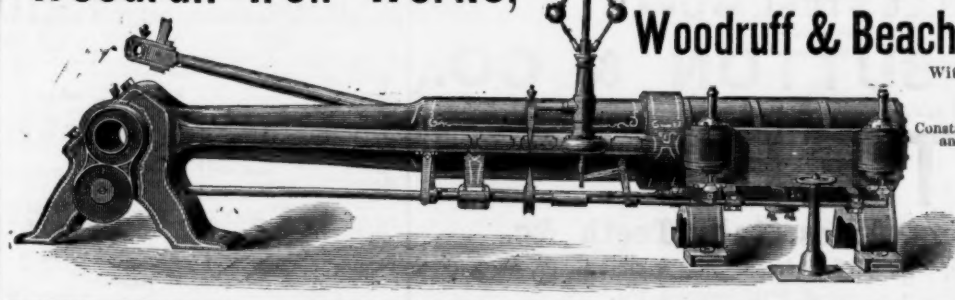
STEAM PUMPS for all duties required.

Centrifugal, Hand and Power Pumps, Special Double Plunger Pumps for Mining Purposes. Boiler Feed and Tank Pumps.

Woodruff Iron Works,

Office, 223 State Street, Hartford, Conn.

Manufacturers of the Celebrated



Woodruff & Beach Steam Engine,

With recent valuable improvements.

Steam Boilers

Constantly on hand and made to order of any size or style. Special attention given to the manufacture of

MILL WORK

And all kinds of Machinery.

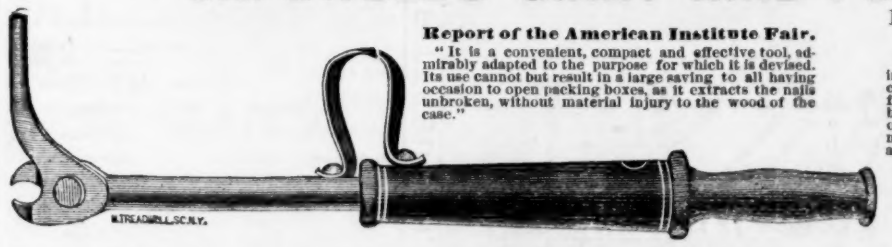
CASTINGS

Of any size or style. Direct all letters to **"The Woodruff Iron Works, Hartford, Conn.,"** as the Woodruff & Beach Iron Works and firm of Woodruff &, Beach are both dissolved.

MALTBY, CURTISS & CO., Waterbury, Conn.,

Manufacturers and Sole Proprietors of

CAPEWELL'S GIANT NAIL PULLER.



Report of the American Institute Fair.

"It is a convenient, compact and effective tool, admirably adapted to the purpose for which it is devised. Its use cannot but result in a large saving to all having occasion to open packing boxes, as it extracts the nails unbroken, without material injury to the wood of the case."

Reasons why you should Use the Nail Puller.

1st. The edges of the boxes are never split or injured. 2d. No broken Nails in the box or cover. 3d. The box and cover remain sound for future use. 4th. Nails are drawn without breaking or bending. 5th. The box can be opened in half the time required by the old method with chisel or crane. Send for prices, and other information, to

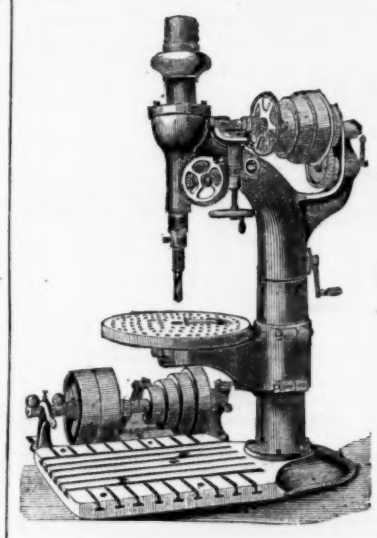
MALTBY, CURTISS & CO.,

Hardware Commission Merchants,

62 Reade St., N. Y.

E. HARRINGTON & SON,

Manufacturers of

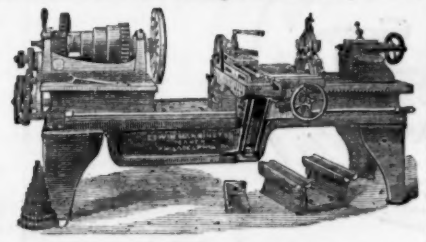


Engine Lathes,

From twelve (12) to forty-eight (48) inches swing;

Hand Lathes; Wood Turning Lathes; Vertical Drills; Boring Mills; Tapping and Centering Machines; Screw Press for Mandrels; **Grindstone Boxes.**

Cor. N. 15 St. & Pennsylvania Ave., Phila.



GRANT'S LIGHTNING SCREW PLATE.

The most perfect Labor Saving Tool ever invented for its purposes. Warranted to do five times the work possible with any other screw plate. Also *HAND BOLT CUTTING MACHINES,* ranging in price from $60 to $200. *POWER BOLT CUTTERS,* from $175 to $350.

FINE FRICTION CLUTCHES.

WILEY & RUSSELL, Greenfield, Mass.

THE PULSOMETER,

OR

Magic Pump.

The **simplest, most durable** and **effective** pump now in use. Adapted to **all situations,** and performs all the functions of a steam pump without its consequent wear and care. No machinery about it. Nothing to wear out. Will pump **gritty** or **muddy** water without wear or injury to its parts. It cannot get out of order. Branch Depots: 104 Sudbury St., Boston, Mass.; 1327 Market St., Philadelphia, Pa.; 59 Wells St., Chicago, Ill.; South Western Exposition, New Orleans, La.; 811 & 813 North Second St., St. Louis, Mo.

C. HENRY HALL & CO.,

20 Cortlandt Street, New York City.

GRAHAM BROS.,

London and Stockholm,

Engineers, Anglo-Swedish Merchants And Engineers' Agents.

First-class Makers of Machinery & Specialties, &c., desirous of extending their exports, will find it in their interest to supply us with full particulars and prices, &c., &c.

London—122 Cannon Street, E.C.

Putnam's Government Standard

FORGED

HORSE SHOE NAILS.

Manufactured from the best of **NORWAY** Iron, and warranted to give entire satisfaction.

S. S. PUTNAM & CO.,

NEPONSET, MASS

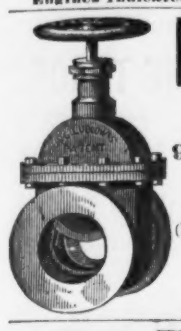
Machinery, &c.

ANDREW WATSON,
MACHINIST and ENGINEER,

Nos. 537 & 539 Dickinson Street,
Near Trenton Avenue, 19th Ward, PHILADELPHIA.

Builder of ***Vertical Steam Engines and Boilers***, peculiar for their economy of space and fuel, safety and quickness in raising Steam. Also, sole manufacturer of ***Improved Balance Governor*** with automatic stop, ***Balance Slide Valve, Safety Valves, Stop Valves, Improved Pistons for Engines***, which require no setting by the Engineer. Engine Builders and Dealers supplied with ***Governors, Stop Valves, Safety Valves, &c., &c.*** These governors are fitted up in the very best manner, with brass Valves and Seats, which will not corrode or stick fast. Guaranteed to regulate under any irregular load which an Engine is subject to. Millwright work executed, and Machinery in general satisfactorily repaired.

Engines Indicated Promptly and with the Greatest Accuracy.



Ludlow Valve Mfg. Co.,

OFFICE AND WORKS:

938 to 954 River St. & 67 to 83 Vail Ave., Troy, N. Y.,

VALVES

(Double and Single Gate, ¼ in. to 48 in.—outside and inside Screws, Indicator, &c.)
for Gas, Water and Steam. Send for Circular.

Also FIRE HYDRANTS.

THE

Shapley Engine

Patented Feb. 10, 1874.

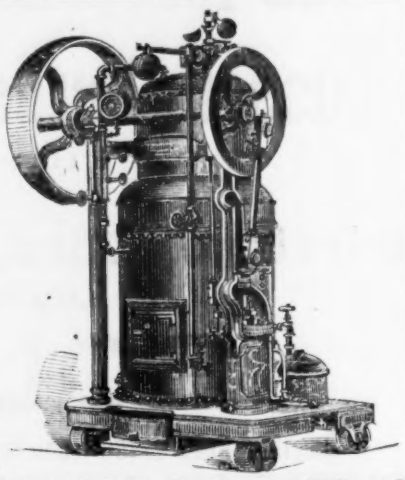
COMPACT,
PRACTICAL,
DURABLE,
ECONOMICAL.

$200·00.

Cheaper than any Engine offered of the same capacity.

MANUFACTURED BY

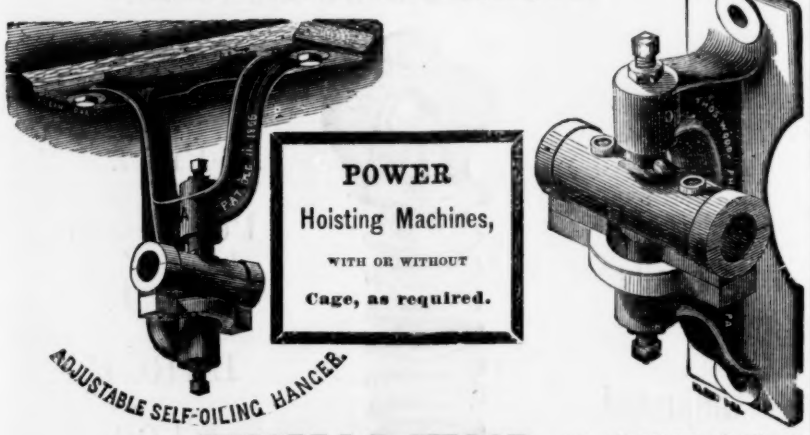
SHAPLEY & WELLS,
Binghamton Iron Works,
Binghamton, N. Y.



Manufacturers of **Steam Engines, Boilers, Water Wheels, Circular Saw Mills and Mill Work generally.**

Fairmount Machine Works,

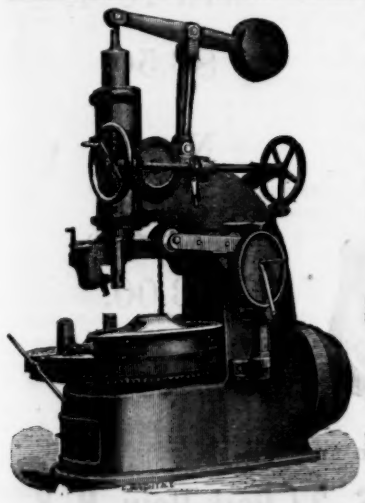
Office, 2106 Wood St., Philadelphia, Pa.



THOMAS WOOD, *Adjustable Self-Oiling Post Hanger 6 in. from post to center of shaft.*

MANUFACTURES AS SPECIALTIES,

POWER LOOMS, with (new) Patent Box Motion. SPOOLING, BEAMING, DYEING and SIZING MACHINES.
BOBBIN WINDING MACHINES—wind direct from hank or skein to shuttle bobbin, SHAFTING, with Patent Adjustable Self-Oiling Bearings.
PLANS taken, and FACTORIES fitted out complete with Shafting and Gearing.
PULLEYS, from 4 inch to 10 feet diameter, of most Approved Pattern.
SELF-ACTING WOOL SCOURING MACHINES, (Yewdall's Patent.)
Machine and Foundry Work in all their branches. Send for Price List of Pulleys & Shafting.



NEW-YORK STEAM ENGINE CO.
MANUFACTURERS OF
MACHINISTS' TOOLS
OF ALL DESCRIPTIONS
CHAS. A. CHEEVER, TREAS. No. 98 CHAMBERS ST.
GEO. Q. DOW, SEC'Y. NEW-YORK

We have the best and most complete assortment of

MACHINISTS' TOOLS,

in the country, comprising all those used in **Machine, Locomotive and**

R. R. REPAIR SHOPS.

We make a specialty of manufacturing

Gear Wheels of all Descriptions,

which are made absolutely perfect, with **Patent Gear Molding Machine.**
For Photographs, Prices and Description, etc., address
N. Y. STEAM ENGINE CO.,
98 Chambers Street, New York.

STURTEVANT

Pressure Blowers, Fan Blowers and Exhaust Fans.

10,000 SOLD IN SIX YEARS.

SEND FOR ILLUSTRATED CATALOGUE.

B. F. STURTEVANT, 72 Sudbury Street,
BOSTON, MASS.

Machinery, &c.

COMBINATION.

Having purchased all of the Right, Title and Interest of the firm of DIBBLE & HINE, of New Haven Ct., in the

Hine Patent Bolt Cutter and Nut Tapping Machines,

and having combined the "Hine Patent and Chapin Improved Bolt Cutter," we now offer to the public the improved

HINE PATENT BOLT CUTTER, the best machine in the market.

Its superiority over all other machines is the ease and rapidity with which the Dies can be changed, and the quality and quantity it can produce. Any boy can, in one minute, change the Dies from one size to another. We build machines to cut from one-quarter inch to and including two inches. Hence we can furnish the Bolt Shop, Railroad Shop, Machine Shop, or any shop with the **cheapest** and **best** Bolt Cutter in the market.

Prices and any information given on receipt of letter, by addressing

THE CHAPIN MACHINE COMPANY,
Pine Meadow, Conn.

TIRE BLANK AND RIVET MACHINES, BOLT HEADERS, &c., constantly on hand and made to order.

Established 1848.

WM. SELLERS & CO.,

1600 Hamilton Street, PHILADELPHIA.,

Engineers, Iron Founders and Machinists.

RAILWAY SHOP EQUIPMENTS.

Our Steam Hammers, Lathes, Planers, Drills and Bolt Cutters
Are of Improved and Patented Construction.

Railway Turning and Transfer Tables,
SHAFTING & MILL GEARING, a specialty.

Pivot Bridges.

☞GIFFARD'S INJECTOR--IMPROVED, SELF-ADJUSTING.☜

A. M. SWAIN, MECHANIST,

North Chelmsford, Middlesex County, Mass.,

Attends Personally to the Improvement of

WATER POWER
AND
MACHINERY.

TURBINE WHEELS,

And a large variety of other Machinery Manufactured in Wood and Metal. Power Weighed, Water Measured, and Plans and Specifications prepared.

REFERS BY PERMISSION TO

James B. Francis, C. E.,
Engineer of Lowell Co.'s, Lowell, Mass.
George Richardson,
Supt. Lowell Machine Shop, Lowell, Mass.
Charles L. Hildreth,
Foreman Lowell Machine Shop, Lowell, Mass.
A. J. Hiscox,
Prest. Hiscox File Mfg. Co., Lowell, Mass.
John Rhodes,
Warp Manufacturer, Millbury, Mass.
Hiram F. Mills, C. E.,
Engineer Essex Co., Lawrence, Mass.
Jonas Kendall, M. E.,
South Framingham, Mass.
James Emerson,
Dynamical Engineer, Holyoke, Mass.
Holyoke Paper Co.,
Paper Manufacturers, Holyoke, Mass.
Chas S. Bliven,
Willimantic, Conn.

THE AMERICAN DREDGING CO.

BUILDERS OF STEAM DREDGING MACHINES,

GUNPOWDER PILE-DRIVERS, &c.

CONTRACTORS FOR

IMPROVING RIVERS AND HARBORS,
EXCAVATING CANALS.
RECLAIMING AND FILLING LOW LANDS,
PILING FOR FOUNDATIONS, PIERS, Etc.

Offices, No. 10 South Delaware Ave., Philad'a.

Steam Pumping Machinery

OF EVERY DESCRIPTION.

PHILADELPHIA HYDRAULIC WORKS, Cor, Evelina & Levant Sts., PHILA.

Send for Descriptive Price List.

Machinery, &c.

WESTON'S
PATENT DIFFERENTIAL
Pulley Blocks.

Warranted superior to any made.

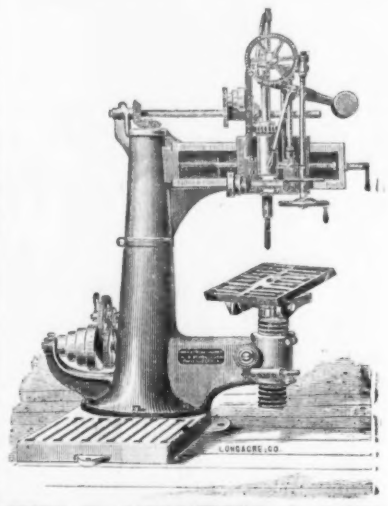
RATCHET DRILLS,

Machine Finished, Case Hardened and Interchangeable.

Self-Sustaining Rope Pulley Blocks

Being worked with a rope the motion is quick and steady, and in many cases is more suitable than the chain block. It is self-sustaining, the eccentric brake being put in or out of action by moving the hand-rope to the right or left, or by pulling the rope outward. The weight can be lowered or sustained at any desired point.

VAN WART & McCOY,
Sole Agents,
43 Chambers Street, NEW YORK.



WM. B. BEMENT & SON,
Industrial Works, Philadelphia, Pa.
Manufacturers of

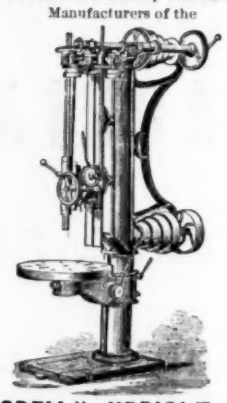
MACHINISTS' TOOLS

Of all descriptions. **Steam Hammers** a specialty.

JAMES HENSHALL,
Engineer, Machinist & Blacksmith
1056 Beach St. PHILADELPHIA.

Drawings made to order. Repairing of all kinds promptly attended to. Blacksmithing executed all its branches.

P BLAISDELL & CO.,
WORCESTER, MASS,
Manufacturers of the



'BLAISDELL" UPRIGHT DRILLS
And other First-Class Machinists' Tools.

HASKINS'
Machine Company.
Fitchburg, Mass.

Manufacturers of

VERTICAL STEAM Engines & Boilers

The Safest and Best in the Market.

SEND FOR CIRCULAR.

JOHNSON'S PATENT UNIVERSAL
LATHE CHUCK.

We invite attention to the superior construction of this chuck. Its working parts are **absolutely protected from dirt and chips.** It is strong, compact and durable, and will hold the greatest variety of work, as the jaws are adjustable with a range of the full diameter of the chuck. For Price List, address,

Lambertville Iron Works, Lambertville, N. J.

TUBAL SMELTING WORKS,

760 South Broad Street, PHILADELPHIA.

PAUL S. REEVES,

MANUFACTURER OF

ANTI-FRICTION METALS

OF VARIOUS GRADES.

XXX	Metal Nickel Hardening	50 cts.	₱ lb
XX	Metal Nickel Hardening	45 cts.	₱ lb
X	Metal Copper Hardening	40 cts.	₱ lb
A	" "	35 cts.	₱ lb
B	" "	30 cts.	₱ lb
C	"	25 cts.	₱ lb
D, E, F	These metals are alloys of lead, with a large percentage of tin, antimony and copper, according to price.	20 cts. / 18 cts. / 16 cts.	
G, H	These metals are the ordinary low priced Babbitt alloys, used where there is not much wear on the machinery, and where economy is required.	14 cts. / 12 cts.	

BRASS CASTINGS, from 21c to 35c per lb. **PIG BRASS,** from 19c to 32c per lb.

Deal in *Block Tin, Lead, Antimony, Spelter, Sheet Copper, Crucibles, &c.*, Old Metals bought.

Plumb, Burdict & Barnard,

BUFFALO, N. Y.

MANUFACTURERS OF

BOLTS

COACH SCREWS,

SKEIN BOLTS,

CARRIAGE BOLTS,

TIRE, SLEIGH SHOE,

Machine and Blank Bolts.

FERNALD & SISE, N. Y. Agents, 100 Chambers St.

S. A. WOODS MACHINE CO.,

Manufacturers of

Planing, Tonguing and Grooving Machines.

Moulding Machines and Dimension Planers a Specialty.

We also deal in all kinds of **Wood Working Machinery, and Iron Tools, Steam Engines and Boilers, Shafting, Pullies and Hangers.**

ALSO,

SOLID EMERY WHEELS AND GRINDING Machines.

PLANER KNIVES to fit any machines.

MOULDING Cutters made to order.

Also agents for **Bradley's Cushioned Hammer.** Send for Circulars and Price List.

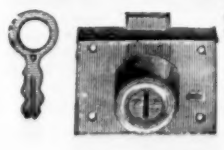
Machinery Depots, 91 Liberty Street, N. Y. 67 Sudbury Street, Boston, Mass.

AMERICAN LOCK CO., Cazenovia, N. Y.

Manufacturers of FINE

Store Door, Drawer and Pad Locks and N't Latches,

Containing 30 or more Springless Tumblers affording great security.



Pugsley & Chapman, 6 Gold St., N. Y. Also, manufacturers of **Wheelbarrows and Store Trucks,** and Hardware Dealers. Send for Price List. A full line of goods in stock.

PUGSLEY & CHAPMAN,
No. 6 Gold St., N. Y.

SUCCESS

BEYOND COMPETITION.

Nellis' Cotton Tie.

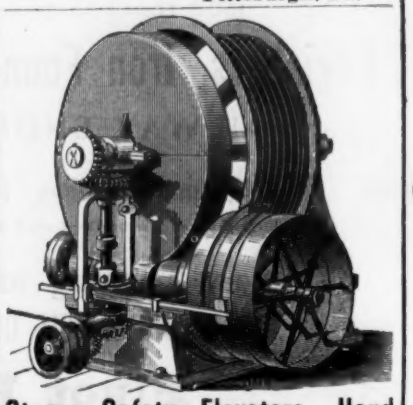
This Tie meets the approval of every Planter and Factor that has given it a trial. A single trial at the Press or Compress affirms its strength, merits and advantages over any in the market. We are prepared to supply the trade at market prices. Orders and Sample Orders respectfully solicited.

Nellis' Process for Tempering Steel,

Which we use in the manufacture of Moldboards, Walking and Riding Cultivator Shovel, Oval and Flat Reversible Points, Cultivator Teeth, Rolling Coulters, Cotton Sweeps, Scrapers, Bull Tongues, Pea Vine Cutters, Whiffletree Clips, Steel and Iron Harrow Teeth, &c.; in fact, everything in the Agricultural Steel lines, which we bevel, temper and finish to suit all kinds of soil. Implement makers and Farmers can govern themselves in making selections by the imprint thereon of our Trade Mark.

Also Manufacturers of Nellis Original Harpoon Horse Hay Fork, Nellis' Grapple and Pulleys and Hart's Post Auger. Your wants in our lines will receive prompt attention by addressing

A. J. NELLIS & CO.,
Pittsburgh, Pa.



Steam Safety Elevators, Hand Hoisting Machinery,

SELF-CLOSING HATCH DOORS.

GEO. C. HOWARD, 17 S. 18th St., Phila., Pa.

Wm. & Harvey Rowland,

Manufacturers of

NORWAY SHAPES,

AND

Norway Nail Rods,

Springs and Steel,

Frankford, Philadelphia.

No. 74 Lantern,

ADJUSTABLE GLOBE.

Kerosene, Oil & Candle.

New, Cheap, Strong, Durable. Takes the No. 0 TUBULAR GLOBE. Excellent Burner.

GREAT Demand for the Cheapest and BEST Lanterns in the Market.

R. E. DIETZ,

54 & 56 Fulton Street, N. Y.

BARR'S ELLIPTIC

Steam Trap

THE BEST IN THE WORLD

SEND FOR A CIRCULAR.

Richards & Pike,
205 LEDGER PLACE, Philadelphia.

KEUFFEL & ESSER,

Importers and manufacturers of

MATHEMATICAL INSTRUMENTS,

Hard-rubber Tools, Drawing Papers, Scales, T Squares, Tapes, Chains, Colors, Etc.

Send 10 cents for illustrated catalogue.

111 Fulton Street, New York.

READ & DICKEY

Cleveland, O.

BROKERS IN

IRON.

Pig, Bar, Band, Hoop, Plate, Sheet, Skelp, Nails, &c.

USE THE

BOARD OF TRADE CHAMBER OF COMMERCE AWARDED TO NEW YORK BLACK LEAD WORKS FOR Plumbago for Lubricating 1872 MECHANICS INSTITUTE

BEST IN THE WORLD.

Awarded TO NEW YORK BLACK LEAD WORKS FOR THE BEST STOVE POLISH EXHIBITED 1872

FOR SALE EVERYWHERE

Samples free to Sextons and Janitors of Public Buildings.

LOOSE POLISH FOR STOVF DEALERS & THE TRADE.

CINCINNATI INDUSTRIAL EXPOSITION.

No more Hot Journals or Bearings by using

Plumbago Lubricant,

FOR ALL KINDS OF

MACHINERY, CAR AXLES, &c.

MECHANICS AND AGRICULTURAL FAIR ASSOCIATION OF LOUISIANA FOUNDED 1860

NEW YORK BLACK LEAD WORKS,
172 Forsyth Street, New York.

Russell, Burdsall & Ward,

PORT CHESTER, N. Y.

Manufacturers of

Carriage, Tire, Plow, Stove.

AND OTHER

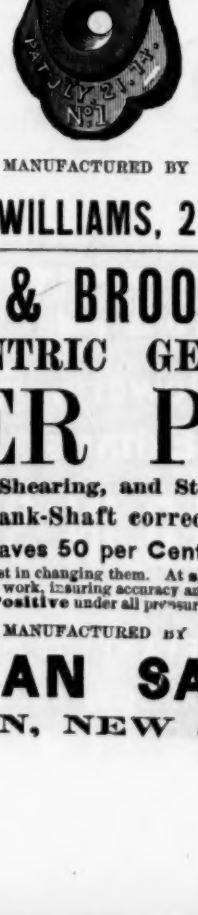
BOLTS.

Carriage Bolts made from Best Square Iron, a Specialty.

THE "GEM" DOOR SPRING,

Made of Best Quality of Steel and of Superior Temper.

An easily adjusted, powerful and effective Spring.



PRICE Per Dozen

No. 1, LARGE, $4.00.

No. 2, MEDIUM, $3.50.

No. 3, SMALL, $3.00.

MANUFACTURED BY

VAN WAGONER & WILLIAMS, 27 Park Row, N. Y.

THE IVENS & BROOKE PATENT

ECCENTRIC GEARED

POWER PRESS

For Punching, Shearing, and Stamping Metals.

Irregular motion of Crank-Shaft corrected by Eccentric Gear.

Saves 50 per Cent.

in wear of Dies and Punches and time lost in changing them. At **same speed** with the old Press, this gives **double the time** to adjust the work, insuring accuracy and greater production.

The Patent Adjustment warranted **Positive** under all pressures, and susceptible of the nicest shade of variation.

MANUFACTURED BY

AMERICAN SAW CO.,

TRENTON, NEW JERSEY.

Send for Descriptive Circular.